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CAN YOU HEAR ME? Early adopters of IP telephony gear speak up. Page 24.

NEW CEO AT NAI George Samenuk is the new boss at struggling security vendor Network Associates. Page 16.

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NetworkWorld

January 8, 2001 Volume 18, Number 2

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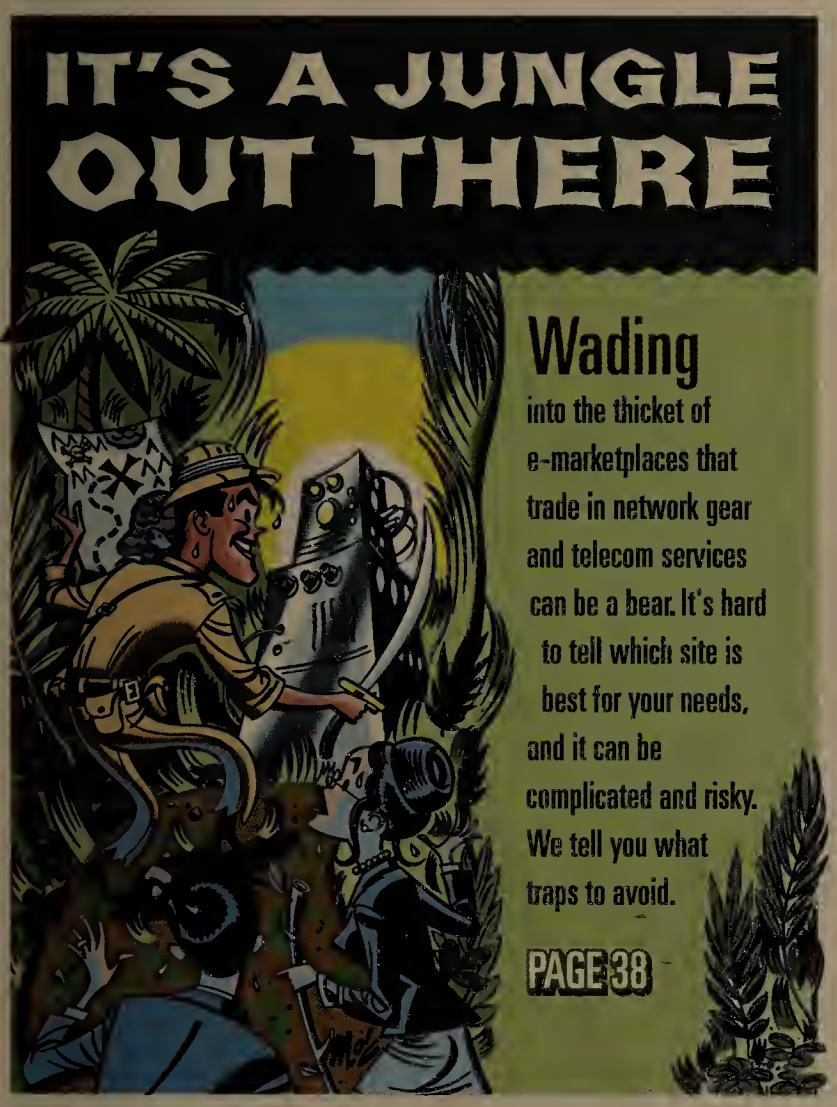

Economic slowdown to test net execs' mettle

BY CAROLYN DUFFY MARSAN AND JENNIFER MEARS

As the U.S. economy slams on the brakes, corporate network and IT executives need to rev up a different set of management skills to handle their staffs, budgets and development efforts in what could be leaner months ahead, experts say.

For the past year, most network and IT managers have focused on recruiting technical talent and rolling out new e-commerce applications. But with the threat of a widespread slowdown looming large, network professionals may need to enforce hiring freezes, slash discretionary spending and quantify returns on their IT investments.

Indeed, the economic downturn brings new career challenges — as well as

See **Economy**, page 56

"The competitiveness of IT vendors [in this economy] may help us. We see vendors coming in a little hungrier . . . ."

Lyn McDermid, CIO, Dominion, Richmond, Va.

MATTHEW MCKEE

"[In a strong economy] it's easier to move ahead on new projects and not stay as focused on price/performance . . . ."

Gary King, senior VP, State Street Bank, Boston

Can Lotus pick up the pace?

BY JOHN FONTANA

CAMBRIDGE, MASS. — Despite top billing in the collaboration market, Lotus faces critical challenges this year after a lackluster 2000 in which it failed to ship any major new products, including a promised cornerstone server for knowledge management.

With the company's annual Lotusphere conference next week, Lotus will try to rebound by focusing on key areas such as knowledge management, XML integration, and wireless and hosting features for its flagship Domino server. The company plans to announce a restructuring at Lotusphere to help it accomplish these goals.

Lotus' success in rebounding

See **Lotus**, page 16

Enterasys bulks up backbone switch

BY PHIL HOCHMUTH

ROCHESTER, N.H. — Enterasys Networks this week will unveil a multifaceted backbone switch that will give users four times the Gigabit Ethernet ports and more than double the 10/100 ports in the company's current premier enterprise box.

The X-Pedition ER16 switch can handle a variety of switching duties and will become Enterasys' strategic offering for the core of corporate networks. While the box gives network professionals a large number of gigabit ports for connecting servers and wiring closet switches, it also combines advanced WAN connectivity features with hardware-

See **Enterasys**, page 14

More online

Switch hitters

Trying to figure out the role of switch routers with server load balancing?

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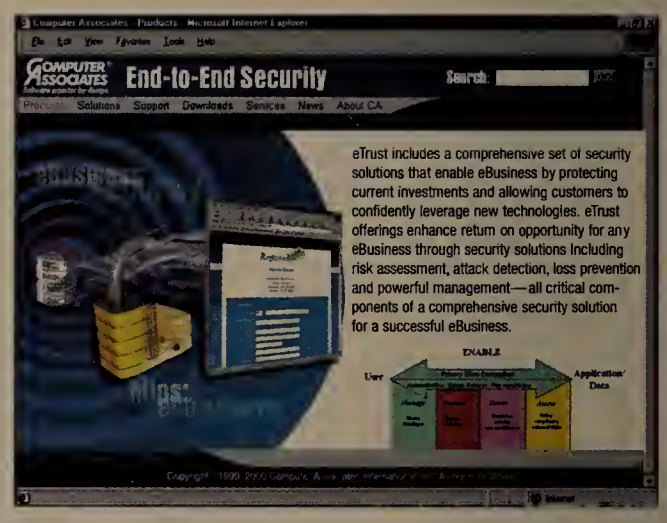

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NetworkWorld

JANUARY 8, 2001

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10 **IPlanet** aims to simplify e-commerce application integration.

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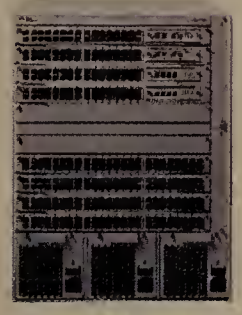

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Tester's Choice:

Network World Test Alliance members, the people who do most of our product tests, have plenty of opinions on ways vendors can improve their products. Now our testers have a way to express those views — a new, monthly column called Tester's Choice. This week, Ed Mier of Mier Communications writes about voice over IP. ***Page 40.***

DVD jukeboxes:

Don't put your coins in just yet. We tested three DVD jukeboxes and found that the products are too immature for enterprise deployment. ***Page 41.***

Niagara e-mail server

NetWare-based e-mail server shines, but if you're looking for list server functions, Niagara leaves you over a barrel. ***Page 44.***

Management

Plugging the skills gaps: Bank One finds that skills assessment and training generate impressive returns. **Page 45.**

Editorial: As goes tech stocks so goes the economy? **Page 36.**

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Howard Anderson: Mobile e-commerce: Hype on steroids. **Page 37.**

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'Net Buzz: If you like Zaplets, check out Droplets. **Page 58.**

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FORUMS

User privilege

In our Power Issue Face-off, two network managers argue the pros and cons of user control in adding software and devices to the network. **DocFinder: 2439**

Back on the broadband bandwagon

What if you just don't have broadband access? Is AOL alone going to cut it? Find out what our readers have to say. **DocFinder: 2440**

SEMINARS & EVENTS

State of the WAN: Extending your business reach

Learn how to extend your WAN to include your customers, partners and suppliers at the State of the WAN Town Meeting. Walk away with solid answers to your WAN questions and start making informed buying decisions with confidence. Sign up today.
DocFinder: 2444

INTERACTIVE

Remote access

Find out if broadband wireless will play a big role in your remote access plans. Sign up now for our Jan. 19 live Webcast. **DocFinder: 2441**

Predicting 2001

The year has just begun, and our reporters offer their take on what to expect:

On WorldCom, AT&T, Sprint

"It's highly probable that at least one of the three CEOs will be ousted."

— Senior Editor Denise Pappalardo

On 'Net privacy and the law

"Lawmakers will tread carefully on the Internet privacy issue when the 107th Congress convenes in January."

— Senior Editor Carolyn Duffy Marsan

On streaming media

"The age of streaming media to the desktop is set to arrive in 2001."

— Multimedia Editor Jason Meserve

Find out more about these predictions and others. DocFinder: 2442

Quiz for cash

Play Network World Fusion's Net Know-It-All quiz game each week, and enter to win $500. **DocFinder: 2443**

BARNEY'S RUBBLE

The best of the NetFlash daily newsletter

Yahoo to charge auction fee, ban race-hate items

I have to admit I am pretty torn as to whether Yahoo's banning of racial items from its auctions is good. I am certainly not a fan of the Ku Klux Klan. These sheet-wearing, beer-swilling, gun-toting yahoos have the collective IQ of a colony of red ants. And neo-Nazis aren't exactly bowling them over at Mensa.

But does restricting the sales of KKK bumper stickers or German war memorabilia do any good, or do these groups simply get stronger as a result of "persecution"? And just what constitutes a racially offensive product? **DocFinder: 2448**

DSL chaos continues

I've seen some stocks fall in my day, but Covad has got to take the cake. Last March the DSL service provider was flying high with a price of nearly $67. Last I checked, you couldn't even buy a Whopper with cheese with a Covad share.

Covad, and other providers in the DSL market, are dying on the vine. Those that haven't gone under are frantically shedding employees in an attempt to stay afloat.

This does not bode well for me getting DSL service at home anytime soon. **DocFinder: 2449**

Web hosting firm loses bid for restraining order against antispam group

According to this report, my e-mail life is not about to get easier anytime soon. In fact, this year promises a whole new level of junk e-mail as spamsters continue to outwit the antispam forces.

Of course, what aggravates me the most is the NetFlash reader who keeps sending me the Haha virus. Real funny, pal! **DocFinder: 2450**

— Doug Barney, executive editor, news

Sign up for this e-mail newsletter online. DocFinder: 3850

COLUMNISTS

Compendium

On logos, beer balls and a short fuse

Fusion Executive Editor Adam Gaffin rings out the old with the already passe Fuse.com and rings in the new with a warm and fuzzy new look for Computer Associates. **DocFinder: 2445**

Keeping Current

A new year for the dot.com

Columnist Fred McClimans touts the end of the dot.com as we know it, and predicts new leaner and smarter companies for the coming year. **DocFinder: 2446**

Telework Beat

The tried and truth of teleworking

Net.Worker Managing Editor Toni Kistner warns, "Most telework arrangements are hard won by longtime employees — in other words, they're a perk." **DocFinder: 2447**

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NEWS BRIEFS, JANUARY 8, 2001

Exec exodus continues at Novell

The revolving door continues to spin within Novell's marketing organization, long considered the company's Achilles' heel. Novell announced last week that Steve Adams, senior vice president of worldwide marketing for just more than a year, left the company to take a position as president and CEO of an unnamed Silicon Valley software firm. Adams helped create Novell's one-Net marketing vision and its Net Services strategy, which calls for selling tools that securely manage a single network consisting of a company's intranet, extranet and the Internet. A transition plan regarding the new reporting structure for the marketing organization will be completed this week. The company also announced that Sheri Anderson, senior vice president and general manager of Novell Customer Services, is also resigning. Michael Lyons, vice president of technical support and a Novell veteran, will assume Anderson's responsibilities.

Former Novell exec Steve Adams sees greener pastures in Silicon Valley.

Spam crime doesn't pay for pair

Steve Shklovskiy and Yan Shtok, both 23, have been sentenced to two years in prison and must pay more than $100,000 in restitution for their role in a September 1999 spam spree that included 50 million e-mails that overwhelmed many large ISPs. Authorities said the pair used PCs with commercially available software to "harvest" e-mail addresses, then sent a mass e-mailing, asking recipients for a $35 "processing fee" in exchange for a chance to work at home stuffing envelopes. More than 12,000 people were duped. AOL, AT&T and MindSpring were among those swamped by customer complaints.

Microsoft faces discrimination suit

Seven African Americans have filed a $5 billion racial discrimination lawsuit against Microsoft, alleging that the company passed them over for promotions, discriminated against them in hiring and firing practices, and forced them to endure "plantation-type mentality" at the company. Six of the plaintiffs added their complaints last week to a case that was filed in June by Rahn Jackson, a former account executive in Microsoft's Washington, D.C., office, who accused the company of passing him over repeatedly for promotions in favor of white men or women despite his more than eight years with the company and 17 years of sales experience. Ironically, Jackson's case was randomly assigned to U.S. District Court Judge Thomas Penfield Jackson, the same judge who in June ruled against the company in the U.S. Department of Justice's antitrust case. A statement issued by the company said Microsoft has a zero tolerance policy toward discrimination in the workplace.

Sprint and Palm joining hands

Sprint PCS and Palm last week cut a deal to create and market an array of software and hardware products aimed at users of Palm OS-based devices who want wide-area access to data via Sprint's nationwide Code Division Multiple Access (CDMA) network. The two firms will offer a jointly branded MyPalm portal, which will let Palm users with a wireless connection access e-mail, corporate data and an array of portal-based personal information applications (see related story on page 29). The firms will also support various connection options for users of Palm devices, including the forthcoming Palm OS-based smart phones from Koyocera, Samsung and other vendors. Initially, Sprint customers with Palm devices will be able to buy a version of Palm's Mobile Internet Kit, which is a cable and software that lets a Palm device use a Sprint PCS phone as a wireless modem. It will be available in early 2001. A CDMA wireless modem for Palm handhelds will be ready in mid-2001.

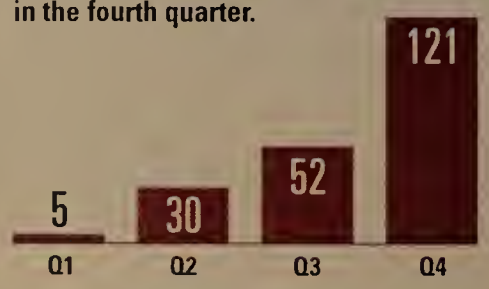
Buying broadband

Extreme Networks last week said it will acquire Optranet, a start-up broadband equipment maker, for approximately two million shares of Extreme stock. The deal should be completed by the end of the month. Extreme would not comment on its strategy or plans for the acquisition, other than saying the deal will help the firm expand in the broadband equipment market for service providers.

Optranet has no announced products, but says it is developing gear that will let service providers offer IP-based differentiated broadband services to the multitenant unit market.

The dot-com debacle

You read about them as they fell one by one, but here's a broader look at how last year's dot-com disaster unfolded. According to a report issued by Webmergers.com, 210 Internet companies closed their doors in 2000, with most of the shutdowns occurring in the fourth quarter.



Note: Two companies closed in unspecified quarters.

Nortel preps big Web switch

Carrier-class device is the first evidence of integration between Nortel and Alteon products.

BY JIM DUFFY

SAN JOSE — Nortel Networks is readying a high-end switch for service providers that could improve Web site and network application uptime for firms that outsource their hosting operations.

The company's Alteon 780 series Web switch, which is the first evidence of integration between Nortel's hardware products and those of acquisition Alteon, will likely be installed in large Web-hosting sites. The switches, which boast more than twice as many Fast Ethernet ports and almost double the Gigabit Ethernet ports of current top-of-the-line Alteon devices, are designed to sit in front of Web servers and distribute requests for content among those servers based on availability or traffic load.

The switches should let service providers handle more traffic on behalf of outsourcing customers more efficiently, which should translate into Web sites and hosted applications that respond to customer requests more quickly. The switches also should appeal to a broader range of service providers, which means companies may have more providers to choose from for their outsourced operations.

The 780 series will be based on Nortel's 10-slot Passport 8600 Layer 3 switch chassis and modules implementing Alteon's Layer 4 to Layer 7 switching technology. The Alteon technology looks deep into packets to determine the content request and direct it to the appropriate server, balance server traffic, manage bandwidth and perform other functions.

"Nortel needs to do something with its Alteon acquisition," says Joel Conover, a senior analyst at Current Analysis. "It needs to make its presence better felt in both the enterprise and service provider marketplaces. I don't think it's done a particularly good job of following through in those spaces after the various acquisitions."

The 780 will dramatically expand the Ethernet port density of Nortel's current high-end content switch offerings, the Alteon 708 and 714. The switch will replace the 14-slot 714, Nortel says. (Sources expect Nortel to unveil copper-based Gigabit Ethernet interfaces for the 708 this year, as well as VPN and streaming media load-balancing features for corporations and service providers.)

The 780 will sport up to 336 Fast Ethernet or 56 Gigabit Ethernet ports. Conversely, the Alteon 714 supports up to 128

Nortel will meld the Passport 8600 with Alteon's Web switching modules.

Fast Ethernet or 32 Gigabit Ethernet ports; the eight-slot Alteon 708 provides up to 64 Fast Ethernet or 16 Gigabit Ethernet ports.

The 780 will also bring packet-over-SONET interfaces to the Alteon Web switches for the first time, expanding WAN options for users.

The 780 will let Nortel better compete with Foundry Networks and its ServerIron 400 and 800 offerings. The 780 will have twice the 10/100M bit/sec Ethernet port density of Foundry's ServerIron 800, while matching its Gigabit Ethernet port count.

The 780 will also put additional pressure on Cisco to integrate its ArrowPoint Web switching technology with the Catalyst 6500 LAN switch line, Conover says. Cisco acquired ArrowPoint Communications last year for just less than $6 billion.

The 780 is expected to ship some time after March.

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Network Associates moves to stem bleeding

Security firm names George Samenuk as new CEO; attempts to restore customer, investor confidence.

BY KATHLEEN OHLSON

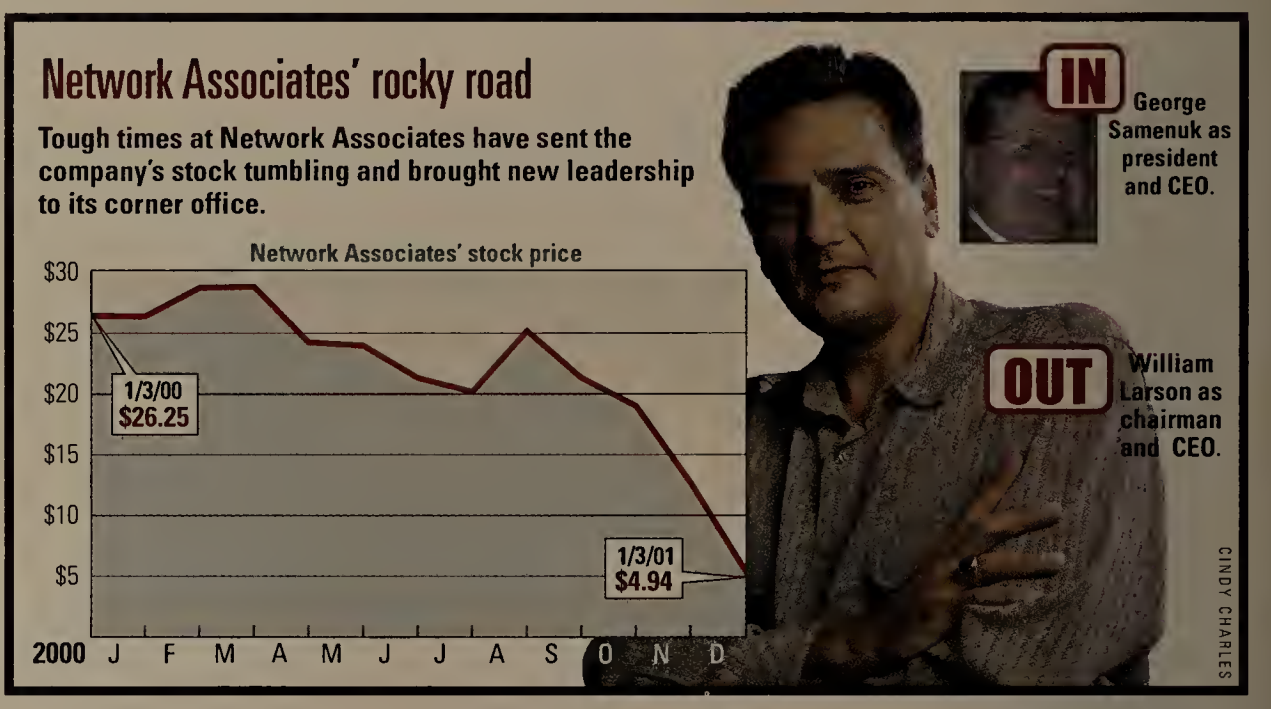
SANTA CLARA — Network Associates has a steep climb ahead to regain customer and investor confidence in the wake of a recent financial stumble that precipitated a lashing by Wall Street and an executive purge.

That's the rough consensus of industry experts, who also say the security software vendor took a meaningful first step up that mountain last week with the swift appointment of a new boss.

The company named George Samenuk its president and CEO. He replaces former Chairman and CEO William Larson, who announced his departure Dec. 26 after Network Associates warned Wall Street it will report up to $140 million in fourth-quarter losses. Wall Street whacked Network Associate's shares the following day, dropping the stock from $11.75 to $4.50. The company was also hit by several lawsuits from investors charging that Network Associates issued misleading statements about its financial status.

"They kept the uncertainty to a minimum by naming [Samenuk] as quickly as they did, and that should be seen as a good sign," says Eric Hemmindinger, an analyst at Aberdeen Group.

Prior to joining Network Associates, Samenuk served as CEO of TradeOut, a Valhalla, N.Y. online exchange, and held several senior management positions with IBM.



Analysts say Samenuk and Network Associates, which makes the McAfee antivirus software, will have to work on regaining credibility with Wall Street, reassuring customers and protecting its customer base.

The new leadership needs to go beyond a "clever strategy," says Steve Hunt, an analyst at Giga Information Group. "Healing is needed for employees, customers and shareholders."

Network Associates' new executive team — which now includes Terry Davis as acting chief financial officer — will have to shape and sell a strategy that gets executed, Hunt says.

Analysts say Network Associates will likely be able to keep customers from bolting. But they add more setbacks could send customers into the arms of competitors such as Symantec, Sophos and Computer Associates International.

Network Associates attributes its expected fourth-quarter shortfall to distributors reducing their inventory and to the slowing economy. However, this isn't the first time Network Associates has been bitten by such problems. It reported sharp earnings shortfalls in the first and second quarters of 1999 when the company erred in forecasting sales.

"[Misreporting their income] tainted them, and investors and Wall Street stopped paying attention to them," Hunt says. "Network Associates became a pariah. It killed them."

Analysts also said Network Associates was hurt by Larson's failed effort to bundle software products, as well as employee turnover after the company's January 2000 reorganization.

Samenuk says his top priorities will be restoring investor and Wall Street confidence, keeping key executives, and a "maniacal focus on customers." ◪

IPlanet aims to integrate e-comm apps

BY JOHN COX

SANTA CLARA — New releases of two server programs from iPlanet E-commerce Solutions, the Sun-Netscape alliance, are aimed at simplifying the work of connecting business applications for e-commerce.

The two programs, Integration Server 2.1 and ECXpert 3.5, are designed to work with the company's Java application server, directory server and other programs to coordinate e-commerce transactions. The software lets a company link its own applications with those of suppliers or trading partners.

Like other e-commerce software vendors, iPlanet is trying to create a set of related server programs that can tie different applications together through a Web site — regardless of the underlying operating system, data formats or communications protocols.

Integration Server, formerly called Forte Fusion, is a classic middleware application that interconnects different enterprise applications. The new version includes the Java Messaging Service API, so it can use any JMS-based messaging application to connect with Java components or with Java application servers.

Previously, Integration Server used HTTP as its sole transport protocol.

ECXpert is a program that uses an array of protocols and document formats to exchange information over WANs among applications. It's targeted at business-to-business transactions based on document exchanges.

Version 3.5 includes XML tools so ECXpert can accept and generate XML documents. It can take documents from one company in a given electronic data interchange format, translate these into XML and send them to another company's Web site that understands only XML.

Also new in 3.5 is a feature that lets an administrator tag some documents or document types as more important than others, which are processed and routed first. In the past, the program processed documents as it received them.

IPlanet software engineers tinkered with several key algorithms for processing and queuing documents to make these operations faster.

Finally, the new version can work with documents based on a key automotive industry standard, dubbed AIAG, for document interchange.

Integration Server 2.1 is available now, starting at $39,500 per server CPU. ECXpert 3.5 will ship Jan. 19, starting at $100,000 per two CPUs.

IPlanet: www.iplanet.com

Correction

The story "Gig Ethernet challenges ATM for MAN" (Dec. 11, page 55) should have stated Cogent Communications and FiberCity Networks are separate companies serving the multitenant unit market.

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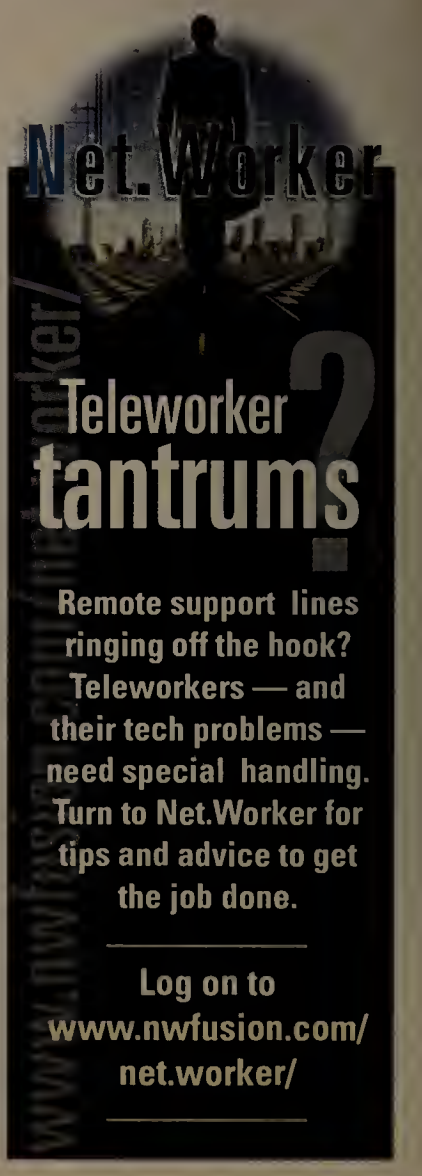

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NaviSite adds Web site analysis tool to its mix

BY JENNIFER MEARS

ANDOVER, MASS. — Hosting firm NaviSite is adding a Web site analysis tool to its menu of managed services, giving customers the ability to track the number of hits to their sites and analyze those hits to determine how effective their Web strategies are.

On Monday, NaviSite will unveil its e-Metric service, which is based on NetGenesis software. NetGenesis, an e-metrics software company, uses back-end relational databases to generate reports that can be manipulated to provide a complete picture of how a Web site is being used, says Chris Hamilton, strategic alliances manager for NetGenesis.

Currently, companies that host their Web sites at NaviSite can track traffic to their sites. With the new e-Metric service, they will be able to drill deeper into their customer bases and analyze how customers use their sites. NaviSite officials say the company is the first managed service provider to offer this type of analytical tool.

NetGenesis uses cues such as IP addresses and URLs to collect information from Web site visitors. The software gathers information in a database and then generates a variety of browser-based reports that track information such as where Web site visitors live, which links brought them to the Web site, which pages they frequent, how much money they spend and how often they visit the site. The e-Metric database can be integrated with offline information such as marketing databases, so customer information can be shared across a company.

Data in demand

Today, about 75% of online businesses use low-end or homegrown reporting tools, and 84% expect demand for site data to jump this year, according to the research firm Forrester.

NaviSite will offer e-Metric starting Jan. 22 in an application service provider (ASP) model and as a dedicated service. Customers choosing the ASP model will not have to worry about licensing fees, administration or maintenance of the service. Costs will run about $2,000 per server, per month for the basic e-Metric service, which also includes consulting.

Customers which choose a dedicated service will buy the NetGenesis license but have the application managed by NaviSite. Costs, including the rental of servers and other hardware, run around $250,000 annually. Consulting services also will be included in the dedicated package.

NaviSite:www.navisite.com; NetGenesis: www.netgenesis.com

ASPs

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Global Crossing takes a crack at managed services

BY DENISE PAPPALARDO

Global Crossing launched a new business unit last week focused on offering multinational corporations managed services.

The business unit, called Global Crossing Solutions, will offer customers standard and customized managed services such as IP VPN, frame relay, ATM, Internet access, Web hosting and voice services. The services will run over Global Crossing's 110,000-route-fiber-mile network that spans 24 countries.

"Global Crossing is serious about offering managed services, but the company has to prove it can reach customers and have the expertise on staff to manage those accounts," says Brownlee Thomas of Giga Information Group. That's because until now Global Crossing has focused on wholesale services to carriers, and the company will need to show it can support business users successfully.

"We have the network reach, sales staff and know-how to offer network services to large multinational companies," says Gary Cohen, president of the group. Cohen, who joined Global Crossing last May, is a 22-year IBM veteran.

Global Crossing Solutions will go up against some stiff competition in light of Equant, Global One and France Telecom joining forces (www.nwfusion.com, DocFinder: 2456). Others, such as AT&T and British Telecom's Concert joint venture, Infonet and Equant, have much more experience in managing global business users, Thomas says.

Global Crossing's net

The heart of Global Crossing Solutions, the new managed services arm of Global Crossing, is the parent company's network.

The network:

- **Spans 110,000 route-fiber miles.**
- **Connects through 24 countries and 170 cities.**
- **Includes two undersea cables in the Atlantic and one in the Pacific.**
- **Supports voice, data and Internet services.**

Global Crossing did not just launch the unit without any prep work, however. The company took several steps last year that led to the formation of Global Crossing Solutions. In February the company acquired IXnet, a voice and data service provider for financial institutions.

IXnet, which was renamed Financial Markets last week, brought with it some big customers such as Bear Stearns, New York Stock Exchange, JP Morgan, Goldman Sachs, Chase Manhattan, NatWest and Merrill Lynch. Without IXnet, Global Crossing would have had a small customer base.

Global Crossing is also in the process of selling its Web hosting service provider, GlobalCenter, to Exodus Communications for $6.5 billion. The deal, announced in September, includes long-term network wholesale and co-marketing arrangements in which Global Crossing will essentially sell the Exodus Web hosting service to its customers.

Once in place, Global Crossing Solutions business customers have access to a greater number of Web hosting data centers including facilities in Europe and Asia.

Also in November, Global Crossing inked a deal with IBM Global Services to manage IBM customers' data network gear. IBM Global Services installs and supports IP, frame relay and ATM gear at customer sites. Global Crossing Solutions will use IBM Global Services in addition to other vendors to roll services out to new customers.

Global Crossing: www.globalcrossing.com

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FOUNDRY NETWORKS

SBC takes 1-2-3 punch from regulators

BY DAVID ROHDE

WASHINGTON, D.C. — State and federal regulators are carrying through on threats to make SBC Communications pay for chronic service problems in the Midwest, but user advocates say they're still waiting to see whether the fines will do any good.

Just before Christmas, officials hit SBC and its Midwestern subsidiary, Ameritech, with three financial penalties for poor service. The Federal Communications Commission fined SBC $6.1 million for failure to install local services within agreed-upon dates and related matters in the Ameritech states. The FCC added an $88,000 technical fine for "willfully" misstating benchmarks in performance reports to the FCC.

Even though the $6.1 million penalty was a record federal fine for a local carrier, the Illinois Commerce Commission went much further, forcing Ameritech to issue $30 million in customer credits for missing installation and repair intervals during the summer and fall.

Fines were based on promises SBC agreed to in October 1999 when it took over Ameritech. Technically the federal penalties were based on installation intervals SBC was supposed to maintain under the merger agreement with competitive local exchange carriers (CLEC). But sources say the missed CLEC intervals parallel delays in business and residential service that caused the FCC to write SBC in October threatening enforcement action (www.nwfusion.com, DocFinder:2453).

Jonathan Goldman, policy director for the Illinois Citizens Utility Board, a user watchdog panel, says the state selected the $30 million figure because an Ameritech employee once alleged service problems in Illinois would cost that much per year to fix and the telco would rather pay lesser fines than invest in the upgrades.

As a result, Goldman was unimpressed by the FCC penalties. "I think [SBC] can afford the $6.1 million," Goldman says. "It doesn't have much of an impact at all." Previously, the FCC's largest local-carrier fine came in March, when it forced Verizon — then Bell Atlantic — to cough up $3 million for lost CLEC orders in New York due to back-office glitches (www.nwfusion.com, DocFinder:2454).

SBC and Ameritech officials say they have indeed taken full notice of the regulators' actions. James Shelley, Ameritech's president of external affairs, conceded in a statement accompanying the Illinois fine that the telco missed agreed-upon service levels in recent months. "We're fixing the problem by training new technicians and investing over $100 million to enhance our network and better serve our customers," Shelley said.

But users and analysts complain that even as SBC brought in new field technicians during the fall, it continued to lose employees with a buyout plan in which they could add five years to their length of service and five years to their age to reach retirement levels quicker.

An SBC spokesman confirmed the so-called Five-Plus-Five plan but says it only applied to management employees. Outside observers say the plan was still damaging to customer service. "It included the management ranks for the field personnel, which means it was basically their most experienced field personnel," Goldman says. "So it's a net loss."

The fines come at a sensitive time for SBC. The firm, traditionally one of the telecom industry's most reliable profit performers, issued a rare downward earnings adjustment in December, partially citing a "late start" in the rollout of DSL remote terminals in the Ameritech region. It also has two long-distance applications — for Kansas and Oklahoma — due for a final FCC ruling later this month. ◪

Enterasys,
continued from page 1

based security and quality of service (QoS) in one chassis.

Residing in the core of a LAN, the X-Pedition can also be used to load balance VPN and security appliances, or to sit on a network's edge and connect sites in a metropolitan-area network via traditional or optical WAN connections.

The box will help Enterasys — one of the four companies split off from Cabletron almost a year ago — compete with Foundry Networks' BigIron, Extreme Networks' BlackDiamond and Nortel Networks' Passport 8600 offerings. The 16-slot, chassis-based switch is aimed at replacing the X-Pedition 8600, formerly Cabletron's SmartSwitch Router 8600.

Enterasys touts gigabit scalability as the device's strongest point, with a backplane that can handle 128G bit/sec. Chassis slots can be filled with up to 128 Gigabit Ethernet ports or 460 10/100M bit/sec ports.

Support for more gigabit ports is key for Mike Cramner, assistant vice president of technical operations for ING Variable Annuities in Westchester, Pa. Cramner's firm, which sells retirement financing services, is replacing a SmartSwitch Router 8600 in its network core and will use the new X-Pedition to supply the firm's 20 servers and its wiring closets with redundant Gigabit Ethernet links.

"The [SmartSwitch 8600] was a fantastic product, but its real limitation is its [gigabit] port density," Cramner says. "Our business has grown dramatically over last year, and we needed to move to Gigabit Ethernet on our servers. What the ER16 gives us is the ability to completely upgrade our network to gigabit."

While his network has some gigabit links, Cramner says, "as soon as you get to the servers, it went back down to 100M bit/sec. Now we'll have pure gigabit once the packet hits the wiring closet all the way to the server."

In addition to supporting up to 1.6 million media access control addresses, the X-Pedition can also handle 4,096 virtual LANs. Cramner says he will use VLANs extensively to segment the varying traffic on his network, such as SNA communications, IP-based Internet traffic and an IPX-based segment with Novell NetWare servers.

The X-Pedition ER16 includes hardware-based security features, including wire-speed packet filtering and access control list processing. These features let the switch filter packets from recognizable denial-of-service attack patterns, such as "Smurf" attacks and "Ping of Death" to protect Web servers.

All ports support Layer 4 switching, allowing the device to handle up to four million Layer 4 application flows. The ability to conduct wire-speed inspection of packets at Layer 4 lets users implement QoS and traffic shaping policies that don't impede on network performance, the company says.

"Hardware-based QoS lets [IS staff] manage their applications and users on a very granular level, not only with bandwidth shaping, but also prioritization of traffic under policy-based routing," says Jeff Lukowsky, marketing manager for the X-Pedition product line.

In addition to having the traffic shaping and management features required for the enterprise core, the X-Pedition will also feature an array of next-generation WAN modules, such as dense wave division multiplexing, 10G Ethernet and packet-over-SONET, which will set it apart from some competing switches from Cisco, Extreme and Foundry, Lukowsky says.

"Instead of just having traditional T-1 and T-3 WAN connections, this device is designed to handle many of the new on-ramp WAN technologies that are starting to surface," he says.

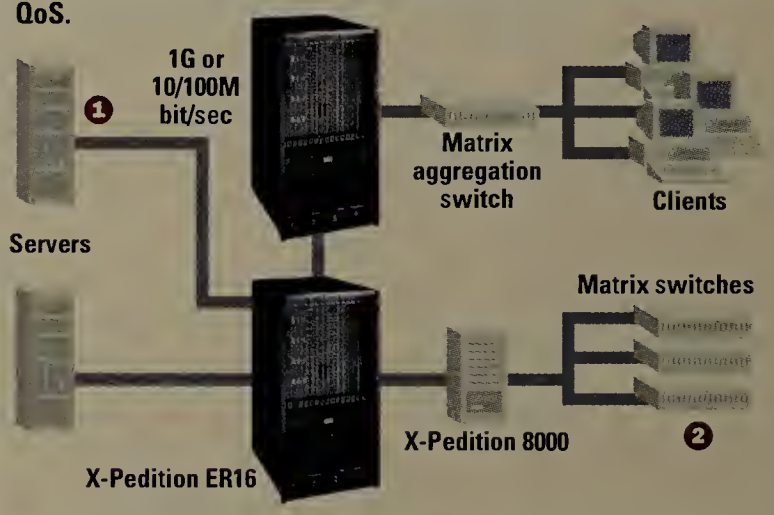
Supporting 10G Ethernet could be key because according to market research firm IDC, about 640,000 10G bit/sec ports will be shipped this year and the installed base for the technology will jump to 6.9 million ports by 2004.

The X-Pedition ER16 is available now and starts at $22,000 for the base chassis. Twenty-four- and 32-port and 10/100 Base-T modules are available, as well as four- and eight-port gigabit modules. A 1000Base-T module, as well as T-1, T-3, ATM and FDDI modules will be available in the first half of this year, with packet-over-SONET and 10G Ethernet WAN modules coming in the second half of 2001.

Enterasys: www.enterasys.com

A switch with backbone

Enterasys' Layer 4 X-Pedition ER16 can serve as a LAN backbone switch, control application access and direct bandwidth with QoS.



1 Up to 128 Gigabit Ethernet ports can connect servers to the network core or to other backbone switches. Access to server applications can be controlled with QoS features on the switch.

2 460 10/100M bit/sec ports can connect clients attached to Enterasys Matrix series wiring closet switches, or other X-Pedition routers, to the backbone.

www.nwfusion.com
RULES AND REGULATIONS
Follow our link to the FCC's layman's summary of the 30 conditions SBC must meet over three years as a result of its October 1999 takeover of Ameritech.
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FOUNDRY
NETWORKS

Spin-off may spark 3Com's carrier business

BY PHIL HOCHMUTH

Industry analysts are looking favorably on 3Com's move to establish its carrier business as a subsidiary, but say the new group will have to break old habits to be competitive and profitable.

On Dec. 21, the day it released second-quarter earnings, 3Com broke off its Carrier Network Business as CommWorks, a wholly owned subsidiary. The move came after a poor performance by the carrier division in the second fiscal quarter, which saw revenue drop 43% from the first quarter and 30% from the same quarter of fiscal 2000.

One analyst says the move will allow the company to bring its carrier products out from the shadows of the old 3Com.

"3Com has a large [carrier] customer base and has been successful, but typically has not promoted its products outside of these relationships," says Gray Hancock, an analyst with Current Analysis.

Frank Dzubeck, president of consulting firm Communications Network Architects, agrees that the company will have to break out of its habit of selling mainly into its customer base — which includes AT&T, AOL and Verizon — and get its name out with newer service providers.

"This business [3Com] is focusing on is one that they sort of didn't put any emphasis on for years," he says. "These guys lived on their laurels for a long time."

Dzubeck says 3Com will also need to push new products for carriers, instead of building on and upgrading its existing product lines. Doing this will have to come from internal product development, he adds, because the company's low market value will prevent it from acquiring much new technology.

"[3Com] doesn't have the currency to buy anyone, so anything they come up with will have to be organic in nature," he adds.

Though 3Com has a history of dumping businesses, Hancock doubts the company is moving toward selling CommWorks.

"I think they'll stay together because they'll be able to leverage their financial and technical resources better as one company," he says. ◪

3Com's carrier market decline

After two strong quarters, revenue from 3Com's Carrier Network Business (CNB) dropped sharply recently, which prompted the company to break off the unit, now called CommWorks.

3Com's CNB revenue (in millions)

Note: 3Com's fiscal year begins in June.

Lotus,
continued from page 1

will hinge at least to some degree on two pieces of software — Lotus Discovery Server and RNext, the follow-on to Notes and Domino R5.

The first will finally ship this year but take time to mature, while the other probably won't be available until late this year or early next.

Those lag times are just part of the battle Lotus will have this year. It also must explain why parent IBM is partnering with key Lotus rivals and how the two companies are progressing in their technical integration of Domino and IBM's WebSphere application server.

Lotus customers appear to be itching for action.

"Last year was flat for Lotus from a release perspective," says Dave Bailey, e-commerce and messaging architect for Imerys, a global mineral processing company in Atlanta. "Maybe they were focused on getting people to move to R5. But this year they have to deliver compelling reasons to migrate to the R5 client, explain what [the knowledge management system called] Raven is, and ship XML tools we can start testing with our current applications."

But pressure is also coming from current innovations evolving outside the traditional collaboration market. Those include a number of interesting options for IT executives, including Web-based and hosted collaboration tools, customer interaction applications, and peer-to-peer software such as that introduced by Notes creator Ray Ozzie called Groove.

"I see the collaboration market heating up with Lotus as the leader that can't get by with the suite approach anymore," says Matt Cain, an analyst with Meta Group. "Lotus needs to be more nimble as the market evolves."

Cain says it would be logical for Lotus to head toward offering Domino as components "so that you could pop collaborative objects inside of applications or portals" instead of having a discreet collaboration system. He says that brings collaboration "in context" with applications firms already use.

In the meantime, Lotus must ship the two products that will help it keep pace with major industry trends toward knowledge management, hosting, wireless and XML.

Next week, Lotus is expected to announce an imminent shipping date for its key Discovery Server, which was due six months ago. The server is the highlight of Raven, which has been troubled since its debut. Lotus broke the package into two pieces last year, shipping the portal-building tools called K-Station after development of Discovery Server lagged.

Now Lotus faces an uphill climb as its impatient parent IBM signed deals in December with Lotus competitors Plumtree and Tacit Knowledge to fill holes in IBM's Corporate Portal Offering, which will compete with Raven.

"If Lotus had delivered Raven six months ago as planned, IBM wouldn't have had to partner like it did and Lotus wouldn't be competing with the mothership," says a Lotus business partner who requested anonymity.

Al Zollar: New Lotus CEO has a challenging year ahead.

Lotus also will spend significant time at Lotusphere detailing RNext, the upgrade to Domino R5 designed to boost Domino's credibility in major markets, particularly application service providers (ASP). CEO Al Zollar, who took the helm at Lotus last year, has said the company's ASP strategy will be a major source of revenue.

RNext features will include the ability to securely isolate multiple customers on a single Domino server, delegated administration and performance improvements aimed at hosted services.

The features are an answer to a big push in the industry to deliver "software as services" instead of shrink-wrapped applications.

But another move by IBM, this time a deal to include messaging software from SendMail on IBM's eServer series for service providers, creates another hurdle for Lotus with ASPs.

"The relationship sends a signal to the market that Domino will remain an enterprise-based messaging system," says James Kobielus, an analyst with The Burton Group. "It means Lotus will have trouble positioning Domino as a boundary messaging system for ASPs."

In addition to ASP support, RNext will bring enhancements in support for XML, a key data exchange format for e-commerce. RNext will include a set of classes that make it easier for developers who know LotusScript and Java to use XML.

"What I'm looking forward to is Lotus to streamline the handling of XML, so that a developer can treat it just like any other data source," says Scott Wenzel, who maintains a number of unofficial Lotus-related Web sites and is a Notes administrator for a federal agency.

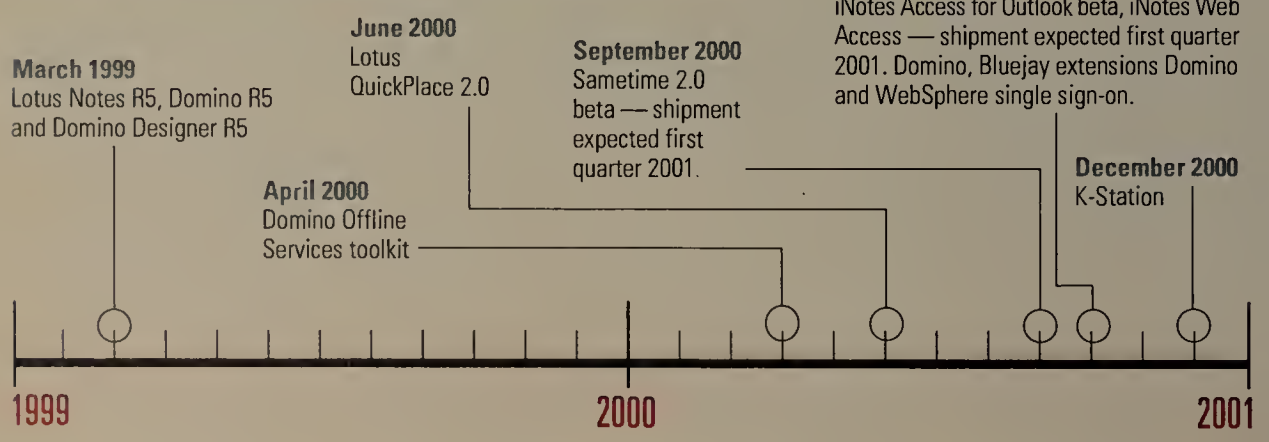
The Domino XML classes will be paired with the Lotus XML Toolkit, a major milestone for Lotus that should ship early this year.

"The toolkit will allow everything in the Notes data store to be represented in XML, including rich text," says Beverly DeWitt, senior manager for Domino developer marketing.

Wireless is another key area for RNext, as the software will improve upon connectivity offered by Mobile Notes and Domino Everyplace. ◪

What Lotus has done lately

Here is a look at some of the software Lotus has released recently.



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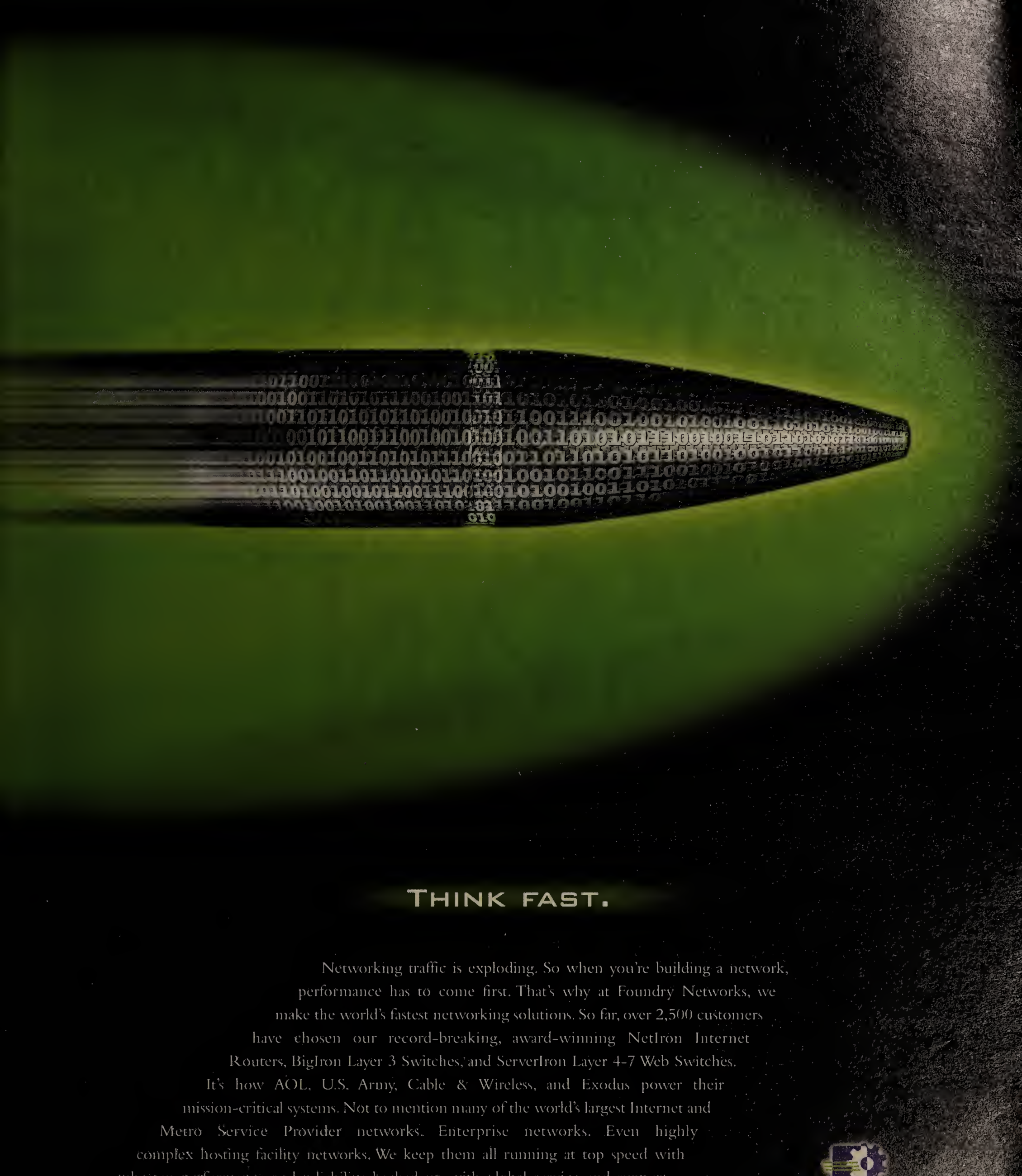

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Briefs

Samsung has unveiled the latest in a line of mobile phones that incorporate PDA functions into a cellular handset. The phone features a touch-panel liquid crystal display. The PDA includes basic functions such as scheduling, telephone directory, notepad and e-mail. The PDA can be synchronized with Microsoft Outlook.

Samsung: www.samsungelectronics.com

OTG Software extended its Windows NT/2000 storage software to Unix and Linux servers last week. DiskXtender provides automated management and migration of data and e-mail messages from primary to secondary tape, optical or DVD-RAM storage. The software uses rules to guide migration and retention of data and is not limited to the number or size of files it can handle. DiskXtender for Linux and Unix starts at $10,000.

OTG Software: www.otg.com

ADIC has released new software for Unix servers that lets IT staff more effectively manage automated optical and tape libraries. AMASS for Unix 5.0 lets users more quickly access data via a caching utility and adds support for tape drives that are compatible with the Linear Tape Open Ultrium technology.

With the caching utility, administrators can customize the manner in which their cache handles files by employing a rules-based priority system that determines how long files are retained in cache. The software is also capable of migrating files in a scheduled fashion from older media to newer media to protect data from being lost due to age or wear.

AMASS 5.0 is available immediately and pricing starts at $10,000.

ADIC: www.adic.com

WebFS lets users share distributed files

BY DENI CONNOR

Start-up WebFS wants to simplify multivendor file and application access for corporate network users, regardless of their operating or file systems.

WebFS has designed a universal file system — called Internet File System — that lets users share Network File System (NFS) and Microsoft Common Internet File System (CIFS) data and applications among Windows NT, Solaris or Linux clients.

The system lets IT professionals manage distributed data and access it across a WAN. Netscape veteran Scott Unkefer founded the firm because he was frustrated by the inability to share NFS files used by multivendor Unix systems across a WAN.

"[WebFS' Internet File System] provides us the ability to have users access the file system securely when they are outside our corporate headquarters," says Lynn Nielson, vice president of IT for Caldera Systems of Lindon, Utah. "It allows us to remotely mount the file system so it looks as if it is local to the remote users."

More than three-quarters of Caldera's 700 employees are remote.

The Internet File System software resides on several Solaris or Linux servers linked over a WAN. Each WebFS server replicates the metadata between it and the other servers so a consistent image of the data is maintained. WebFS client software, which resides on each NT, Solaris or Linux workstation, communicates with an available WebFS server via WebFS protocols.

WebFS protocols bridge the semantic differences between file systems. The protocols are based on FTP and have enhanced security and streaming capabilities. Single copies of applications can also reside on a WebFS server, saving the cost of acquiring multiple licenses per local file server.

A Web-based client residing on a Solaris, NT or Linux workstation securely manages access to the WebFS file system. The client software includes a built-in cache so files can be transferred in whole to the user, thereby reducing network traffic.

"NFS and Microsoft's CIFS are local LAN protocols and have latency issues when distributed over a WAN," says Steve Duplessie, an analyst with the Enterprise Storage Group. "WebFS' software gives you the ability to virtualize a LAN over a WAN, so you can share data and applications among users."

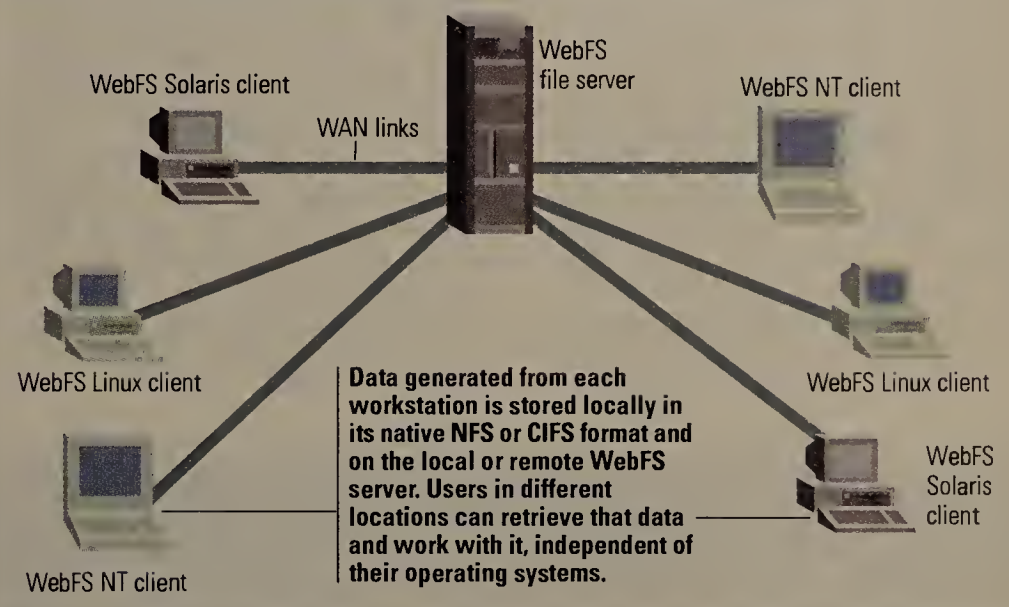
The Internet File System is similar to Microsoft's Web Storage System (WSS), which included a local caching component called Local Web Store (LWSS). WSS, the file system built into Exchange 2000, is a distributed repository for data that can be accessed through many interfaces, protocols and devices. Microsoft isn't expected to ship LWSS until the end of 2002.

WebFS' Internet File System software will ship this month starting at $32,000 per year per 100 users.

WebFS: www.webfs.com

Universal access

WebFS lets users share NFS and Microsoft CIFS files across a WAN.



IBM inks e-support services deal

BY CAROLYN DUFFY MARSAN

IBM last week announced plans to offer automated technical support services via the Internet for corporate customers that purchase its notebooks, desktops, workstations and servers.

By June 2001, IBM's ThinkPad notebooks, NetVista desktops, IntelliStation workstations and eServer xSeries systems will come bundled with an automated diagnostic tool from Support.com. A free downloadable version of the Support.com software will be available on IBM's Web site for older IBM Intel-based systems.

Support.com's software can be configured to automatically diagnose and fix problems such as inaccurate network settings and IP address changes. The software supports self-service by walking end users through the steps to solve their own system problems. If a problem can't be fixed, the end user can connect live to a specialist at IBM or a corporate help desk. The specialist can use the software to return an end user's computer system to an earlier functioning mode.

Group support

Popular with large corporations, Support.com's software is used by Cisco, J.C. Penney, General Electric and Bear Stearns.

With last week's deal, IBM becomes the largest hardware company to license Support.com's software. IBM competitors Compaq, Dell and Hewlett-Packard offer similar capabili-

See **IBM**, page 20

Nortel, Xircom and Sierra team on 3G modems

BY JAMES EVANS

Nortel Networks recently signed an agreement with Sierra Wireless and Xircom to independently develop one of the industry's first third-generation wireless modems based on the Universal Mobile Telecommunications Service standard.

Sierra Wireless and Xircom plan to develop their own multimode UMTS/General Packet Radio Service (GPRS) wireless modems, including PC cards, Compact Flash cards and embedded modules. Nortel intends to finance the development and to provide technical and joint marketing support. Market trials and general availability are expected to start in the first half of 2002. Nortel did not disclose how much it would invest.

The growing demand for UMTS and GPRS in Europe, Asia and, ultimately, in the U.S. is pushing Nortel deeper into this market, says Peter MacKinnon, Nortel vice president of wireless Internet. Faster data rates and richer video and sound possibilities for wireless devices are coming, he says.

Nortel will make several announcements in the coming weeks about IP service delivery and applications for wireless networks, MacKinnon says.

The new modems will work in PDAs, laptops, in-vehicle information systems, MP3 players, digital cameras and IP-enabled personal digital devices, Nortel says. There is a movement to bring UMTS to the U.S. Last month, AT&T Wireless Group announced it would upgrade its U.S. network during 2002 to support UMTS and 3G data rate speeds of 2M bit/sec.

Sierra Wireless, based in Richmond, British Columbia, offers wireless data communications hardware and software products and recently licensed wireless protocol stacks from Sasken Communication Technologies of Bangalore, India.

Evans is a correspondent with the IDG News Service's Boston bureau.

www.nwfusion.com

PREPPING FOR WIRELESS

Get 10 tips for making your site wireless-ready in a primer from Sierra Wireless.

DocFinder 2431

find it online

IBM,
continued from page 19

ties from Support.com rival Motive.

IBM will roll out additional fee-based services around the Support.com software later this year, including a back-up recovery and restore service, and a managed LAN service, says David Hume, director of technical support for IBM's Personal Systems Group.

"Over time, you'll see an integration of our system management tools with the Support.com tool set," Hume adds.

IBM's technical support Web site, however, will remain the same. IBM hopes its customers won't have to point and click their way through the site as often once the Support.com software is installed on their machines.

IBM is testing the Support.com software with several of its large customers. IBM's internal help desk and its outsourcing division are also reviewing the technology, Hume says.

IBM Personal System Group: www.pc.ibm.com; Support.com:www.support.com

7:05 AM

As your backup window continues to shrink, your data continues to explode.

Your backup now takes a mind-numbing 14 hours instead of 6; and 40 cartridges instead of 10.

10:23 AM

Hourly, Your Capacity To Manage Data Storage Problems Continues To Fade.

An Exabyte Tape Library Powered By M2 Will Make Your Problems Disappear In No Time.

The daily grind is hard enough without factoring in the data explosions. The capacity of an Exabyte Tape Library with an M2 inside will most definitely make your day more manageable. These libraries will help solve your most critical data storage problems — with ease. Each integrated system packs an enormous amount of capacity into a decidedly small footprint. And with lightning-quick M2 tape drives inside, your problems will disappear even faster. To find out more about Exabyte's automated tape libraries, just ask your reseller, or go to www.m2wins.com. We'll have you back up to capacity, in no time.

MAMMOTHTAPE technology

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Tolly on Technology . Kevin Tolly

AROUND THE WORLD WITH OUTLOOK 'ROAD WARRIOR'

When I travel, I rely on Microsoft Outlook to be my link to the world. At one point recently, in Korea, ISP problems left me no choice but to dial direct to the U.S. With link speeds running around 12K bit/sec and charges running several dollars per minute, I sure am glad that I was running Outlook 2001's "Road Warrior" edition.

For starters, "Road Warrior" incorporates a new "quick connect" feature. By maintaining connection on the central-site Exchange server, the session bypasses the time-consuming "start from scratch" logon/handshaking sequence. So, instead of waiting a minute or two after the modem answers, Exchange traffic starts flowing almost immediately.

The old Outlook/remote-access servers offered four common messages to an unsuccessful dial-up attempt: "busy," "no answer," "dial-up networking not responding" and "Exchange server not responding." All of them meant the same thing — try again. This required manual intervention. For a road warrior, this means leaving the room thinking you are sending the file you promised and coming back hours later to find out that after one try, the system had given up and the important message languishes in your outbox.

Now, a bit of added logic lets you program the "synchronization engine" to respond automatically to situations where the connection just doesn't go through. You can specify maximum retries, length of time to wait between retries and so forth. This dramatically improves your chances for a successful upload/download of your mailbag.

The best new feature, though, is what Microsoft calls LinkSense. Like Power Saver mode on your laptop, LinkSense provides connection-speed awareness to Outlook. This situation-awareness is critically important. When plugged into wall power, users care little whether the disk keeps spinning and the screen stays bright, but when running on battery the careful management of these functions is what allows users to eke out more life from the battery and improve productivity.

Correspondingly, we care little if a noncritical, multimegabyte attachment finds its way into our in-boxes when we are sitting on a Fast Ethernet campus LAN or even across a T-1 line. But it is the kiss of death when that same file tries to squeeze down a pipe like my 12K bit/sec trickle.

When LinkSense determines the pipe is 56K bit/sec or slower, it automatically adjusts its behavior — which can be further configured by the user. Only attachments directed explicitly to you are delivered. If you are a "cc" or "bcc" recipient, the file stays on the Exchange server. Your message lists the name and size of the attachment. Outlook calculates how long each download will take at the current link speed and prompts you to accept any file that will take more than 10 minutes. With older versions of Outlook, one could filter files with certain characteristics, but that left a lot to be desired.

The new edition even includes detailed state information, so you know exactly what Outlook is doing. No more wondering, "Is it hung or is it just thinking?" When it does crash, detailed logging and diagnostic utilities help pinpoint the problem.

However, "Road Warrior" is a figment of my imagination. Maybe some day Microsoft will buy into my outlook.

Tolly is chairman and CEO of Tolly Research. Tolly also is founder, president and CEO of The Tolly Group. He can be reached at ktolly@tolly.com.

1:23 PM

The hodgepodge of platforms, tape drives and autoloaders are getting impossible to manage.

Rack density and capacity continue to be stumbling blocks. You need a system that maximizes both.

8:15 PM

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IP telephony makes a splash

BY PHIL HOCHMUTH

CONVERGED NETWORKS

Companies use IP telephony to dodge installation, support costs.

When it comes to rolling out converged networks, early adopters of IP PBXs are trying a variety of attack plans ranging from the toe-in-the-water approach to full-bore immersion. However they do it, network professionals are finding that in addition to saving big bucks, simplified management and unified messaging applications were the biggest payoffs for running their phone networks over IP.

Early adopters of IP PBXs have tended to be small and midsize businesses with 10 to 300 employees. Smaller shops have embraced the technology mainly because the systems are generally less expensive than key systems or small-office PBXs.

For example, 3Com's NBX IP phone system supports more than 250 users in three states for ChannelWave Software, a Cambridge, Mass., developer of chain management applications. Stephen Douglas, ChannelWave's IT director, says the NBX reduces management and support costs.

"When we initially installed the NBX, we saved around $45,000 over PBX systems of the same size from guys like Lucent and Nortel," Douglas says. "And the support contract is minuscule compared to what a PBX contract would be."

In addition to dodging PBX installation and support costs, Douglas says, he avoids the hassle of cross-training workers on phone and data support, or relying on PBX contractors to make changes for him.

"We're constantly moving phones and rotating users," he says. "If I were dealing with regular PBXs, I would have to train someone to move phones, or I'd have to rely on a reseller to do that." With the NBX, he adds, "if I need to add a new user, I type in a name, plug in the phone and I'm done."

Sells Printing, a prepress graphics company in Milwaukee, uses Alcatel's OmniPCX 4400 IP phone system to support 125 users. Jason Ciena, telecom manager for Sells, touts the manageability of an IP PBX.

"We didn't have any administration tools to begin with on the old system," which was a Fujitsu Starlog small-office PBX, Ciena says. "If we had to move someone's extension, you had to go out and physically pull wire pairs off and punch them down again. With an IP phone, you just log out and log in at another location."

IP telephony goes big-time down under

New Zealand's Ministry of Social Policy recently took on an ambitious Cisco-geared IP telephony installation project. More than 160 PBXs in 200 offices nationwide were replaced with 10 Cisco call servers, and 8,000 IP phones were installed. The implementation is the largest IP telephony installation in the world, outside of Cisco's own corporate network of 16,000 IP phones, the vendor claims.

Between April and October, the ministry planned, tested and went live with the Cisco AVVID (architecture for voice, video and integrated data) IP telephony system, including 10 Cisco Call Manager servers, public switched telephone network gateways, voice mail servers and a Lightweight Directory Access Protocol directory to tie it together. On Oct. 29, the last of the agency's 164 PBXs was put to the curb.

Neil Miranda, technology director for the ministry, says the goal was to use IP as a common protocol to standardize disparate legacy phone systems spread across several departments in the ministry.

Miranda says his goal was to ensure that the rollout would not drag out. A rigid four-month schedule was set to ensure that all 200 offices would be on the same IP-based Cisco phone network as soon as possible.

"We had potholes, of course," Miranda says. "We had Call Managers going down. . . . We had issues with voice quality, such as echo. . . . We basically had every component in the system break at one time or another."

"But what we also had were people working around the clock" who were able to turn most problems around in 24 hours or less, Miranda says. The system has been relatively problem-free since October, he adds.

"Because we had such an aggressive time frame for the project, we're now looking to enhance our business operations much more quickly" by adding unified messaging and other converged network applications, Miranda says.

With the basics now in place, Miranda says the ministry plans to upgrade to a new version of Cisco's Call Manager software that includes unified voice and e-mail messaging. The upgrade for the 10 distributed Call Manager servers will be done from Miranda's central office, another advantage of the converged network, he adds.

"No one's going to say, 'This is a phone call, that is a voice mail' as if they are something separate from what's being sent across a data network," Miranda says. "If it's a phone call, it's just data going over the network. If it's a voice mail, it's part of a unified messaging system, just like e-mail. It's all going over the network and can be managed from one interface."

Large firms take a gradual approach

Stateside, larger companies are taking a more gradual approach to IP-enabling their phone systems.

Munroe Regional Medical Center in Ocala, Fla., recently upgraded its network backbone to Gigabit Ethernet using Alcatel OmniCore 5052 switches. With this backbone in place, says Nick Figliuolo, hospital technology director, Munroe plans to install Alcatel OmniPCX 4400 IP telephony call servers in the next eight to 10 months. However, Munroe is not ready to take the complete voice-over-IP plunge just yet.

"We're not looking to get rid of [our main PBX] right now," Figliuolo says. "There's not a sound reason to get rid of it," technology-wise or for cost-cutting reasons.

Figliuolo says he will use the OmniPCX 4400 to support 200 users in new offices and throughout the building and in a new wing of the hospital.

"We're building a new wing and I have to put computer equipment in there anyway," he says. "If I have to do that, why not just use a phone system that goes through the network?"

Figliuolo says he likes the OmniPCX because it is a hybrid device that can tie into a traditional PBX via a T-1 interface. Users in the main building can still do transfers and four-digit dialing to people on the new system.

The Oregon Department of Transportation (ODOT) tried an IP telephony system to connect a branch office to its network of 11 Nortel Meridian 1 PBXs, but experienced limited success.

"We were looking at IP telephony," says Vance Snook, ODOT telecommunications coordinator. "We started off with our data vendor to install IP telephony for that site, but it just couldn't get things put together." Snook would not identify the vendor.

While the phone quality was acceptable, the phones themselves lacked features available on the old system, Snook says. There were also complications with setting up the IP addresses on the phones, as well call transfer functions, he adds.

"[The phones] seemed more like data devices that could do voice rather than a telephone," Snook says.

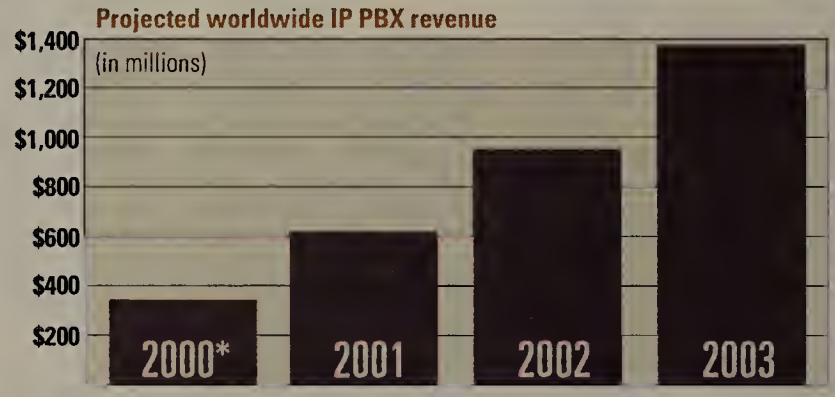
Because the branch office needed to be set up quickly, Snook scrapped the IP telephony plan and installed a Nortel Remote Office 9150 to handle the 20 lines he needed. The 9150 ties into a Meridian PBX in a central office over a T-1 line and extends the PBX's presence over IP.

Snook says ODOT is still looking at IP telephony down the road. While he admits that voice/data convergence may be inevitable, he remains cautious about jumping on the bandwagon.

"I'm moving more and more toward the data side," Snook says. "I see that coming. I can't say I'm crazy about it. . . . I'm a voice person, so I have my biases. I wouldn't jump totally on IP telephony [because] you're at the mercy of the network. Not that our network is unstable, but you're still at its mercy. I always point out that when the network goes down, you can still get a dial tone." ◪

IP PBX boom

The market for IP PBXs is predicted to take off in the near future.



* Figures were estimated before year-end. SOURCE: IDC, FRAMINGHAM, MASS.

Briefs

DSL provider **Covad Communications** says that it will cut 400 more positions as part of a restructuring plan announced in December. The 400 are in addition to 400 cuts announced on Nov. 27. The cuts will primarily affect Covad's Business Solutions division, formerly **BlueStar.net,** and will include sales, operations, marketing and support personnel. Also, as part of its restructuring plan, Covad will close about 200 central offices that are either not performing well or have not been fully built out. Covad estimates the closures will affect about 1.5% of its subscribers. After the closures, Covad will operate in approximately 1,800 central offices.

Santa Clara-based Covad was only one of several DSL companies to announce cutbacks or closures in December. Others included **Jato Communications,** which closed its Denver office, and **Digital Broadband** of Waltham, Mass., which is winding down its operations.

Covad: www.covad.com

Global Crossing last week announced management shifts and a new business unit. David Walsh is now the company's president and COO. Gary Cohen is president and COO of the company's Global Crossing Solutions unit. Walsh and Cohen most recently held the titles of co-COOs of Global Crossing. The company's new business unit, Global Crossing Solutions, will offer enterprise users managed network services. Global Crossing has primarily focused on offering wholesale services to other carriers, but the company has slowly been shifting toward rolling out business services.

Global Crossing: www.globalcrossing.com

Chain gives VSAT net an IP overhaul

Shoppers Drug Mart jazzes up a mature technology that's critical to its 800 outlets.

BY DENISE PAPPALARDO

Canadian retailer Shoppers Drug Mart last year gave its 5-year-old very small aperture terminal system an IP face-lift that the company says has cost-efficiently turbocharged the network.

Supporting more than 800 stores throughout Canada has been no easy task, but like many retail chains Shoppers is using a widely deployed VSAT satellite network. However, the system's 128K bit/sec bandwidth limitations and lack of IP support were leaving the company wanting more.

> ***"Everything critical to business is done through our VSAT platform."***
>
> David Parker, administrator of VSAT network services

VSAT technology has been around for quite some time and is primarily used to connect large numbers of remote locations on a single network. But the technology is not known for fast speeds. Instead of upgrading to a new satellite system or fixed wireless service, Shoppers decided to put a new face on an old standby.

Shoppers turned to its VSAT equipment provider, Scientific Atlanta, for an answer. The retailer needed to support IP broadcast video and IP data, as well as increase the bandwidth the system could handle, says David Parker, administrator of VSAT network services at the company's Ontario headquarters.

Tampering with the nervous system of the company was a big challenge for Parker and his team.

"Everything critical to business is done through our VSAT platform," Parker says.

Scientific Atlanta, which has since sold its satellite business to ViaSat, brought in ViaCast Networks to answer Shoppers' call. ViaCast specializes in satellite IP data and video equipment that rides over most VSAT network infrastructure.

Shoppers deployed ViaCast Quantum receivers that support video and data traffic in one device at all 800 stores. Parker says most other satellite equipment required two receivers, one each for video and data.

Shoppers also deployed ViaCast Forte IP Gateway, DVB Forte 300 Multiplexer and video encoders at its headquarters. The company built its own television studio in Ontario that is used to produce training and distance-learning material for the stores.

"The ViaCast video IP products let us bring business television to our stores," Parker says. "It's not for customers to watch; it's for franchise owners and for interactive distance learning."

The benefits of the upgrade are threefold: IP is now supported across the Shoppers satellite network; bandwidth has been boosted from 128K to 4.2M bit/sec; and the company now supports broadcast video traffic.

The huge bandwidth increase primarily comes from the ViaCast equipment, Parker says. "We didn't have the capability to broadcast IP traffic, which more efficiently uses our space on the satellite network," he says.

Parker has the company's network set up so that 3M bit/sec is dedicated for video broadcasts, while 1.2M bit/sec is used for data traffic during store hours. At night, more bandwidth is dedicated for data traffic to handle large transmissions. Later this year, the company plans to upgrade its internal network to support IP on all its LANs. Today, the company is running its network off of a Santa Cruz Operation Unix platform with Timeplex routers. Once the entire LAN and WAN is supporting IP, Shoppers will have greater bandwidth flexibility. Instead of dedicating 3M bit/sec for video, Parker can then reserve that bandwidth and borrow from it when it's not in use.

JOHN HARQUAIL

David Parker, head of VSAT network services for a Canadian drugstore chain, says upgrading the system was critical for his company.

Shoppers now sends pricing updates and promotional information to all stores on the fly without worrying about chewing up too much bandwidth. "The IP overlay gives us much more bang for the buck," he says.

In each store all cash registers, pharmaceutical terminals and manager terminals can receive information in real time. Before the upgrade, the company would hold off on large data transmissions because of the limited bandwidth and the network is used to distribute music and audio promotional material that is played in each store.

Now store managers can send inventory updates and download software upgrades anytime.

While Parker would not reveal how much the company spent on its upgrade or how much the company is saving, he describes those savings as substantial. Shoppers has reduced training costs because employees don't have to travel great distances to attend a session. The company also no longer needs to use correspondence courses, which were popular for pharmaceutical assistant training.

www.nwfusion.com

BANKING ON BANDWIDTH

Are you unwilling to change your VSAT technology? Download the latest product resources from ViaCast for tips on how to boost your bandwidth.

DocFinder 2430

find it online

Eye on the carriers . David Rohde

AVOIDING THE CONVERGENCE DISTRACTION

I've always been amused by the ability of marketing executives for telecom-oriented vendors to promote benefits that only appeal to people exactly like themselves, or even to nobody at all.

Whenever I've heard a pitch for unified messaging, the standard scenario is a sales-rep road warrior rushing to an airport pay phone to "listen" to his e-mail via text-to-speech, then responding via voice mail to his administrator asking her to fax some crucial document to the next airport's frequent-flyer lounge. None of which explains why companies should fork out hundreds of dollars per seat for unified messaging for their legions of desk-bound employees.

I've heard pitches from competitive local exchange carriers (CLEC) with no new idea other than a promise to cater to "small to midsize businesses," by which they often mean small businesses, period — 90% of which may be unaware that there's anything wrong with the regular phone company.

I've seen the big carriers mess with endless variations on T-1 convergence and integrated access even as their most important customers soared past T-3 to OC-3 and beyond, begging for cheap bandwidth for pure data and never mind the nonproblem of voice traffic.

That's why it's fascinating to see a new carrier come along such as the one we introduced in this section in October called GiantLoop Network, which is promoting the idea of enterprise optical networking. It's a variant on some of the new metropolitan-area Gigabit Ethernet players such as Yipes Communications and Telseon, only GiantLoop is designing multiprotocol support for IP, ATM and Gigabit Ethernet, plus storage-oriented protocols such as Fibre Connection, Enterprise System Connection (ESCON) and Fibre Channel.

I have searched this vendor's Web site and I can't find any mention of voice over IP. I see no new T-1 integrated-access services to save you pocket change. No way to click on your buddy's name to save the two seconds it takes to dial his phone number.

What GiantLoop does care about is that "large businesses will add an average 22 terabytes of online storage per company this year." Now that's something to lose sleep over.

In GiantLoop's literature, you won't find much about Our Converging World. Instead, you'll get apparently retrograde but valid observations about the continuing balkanization of corporate voice, data and storage architectures. That's why GiantLoop is touting the idea of using dense wave division multiplexing that's protocol- and bit-rate-independent to consolidate ESCON, Fibre Channel and Ethernet circuits on the same optical fiber.

Sound intriguing? Maybe it's because GiantLoop wasn't founded by the usual merger fallout of telecom has-beens. Two of its four co-founders are ex-EMC executives; one comes from Comdisco. So far GiantLoop has been light on the service details. But in 2001, every time you see a me-too CLEC go bankrupt, remember that there are new carriers with new ideas relevant to today's market coming up to take their place.

Rohde is managing editor of The Edge section of Network World. *He can be reached at drohde@nww.com.*

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www.belden.com/products/apprep.htm

The Edge

Service provider developments at the juncture between the enterprise and the new public network

Briefs

Service provider **Broadwing Communications** says it's installing Micromuse's Netcool software to provide real-time monitoring and management capabilities for Broadwing's 10 hosting centers from its network operations center in Austin, Texas. At the hosting centers, Broadwing offers collocation and managed services, including mass storage and remote disaster recovery for corporations, application service providers and others.

Broadwing: www.broadwing.com

Quantum Bridge Communications, a maker of passive optical network (PON) switches and termination devices, last month filed for an IPO. The company is one of the first to make a new generation of PON gear, which combines a choice of T-1 and 10/100M bit/sec Ethernet connections for business locations near fiber buildouts, such as office parks, or neighborhood gateways connecting to short DSL hops. Quantum Bridge has been busy making alliances with integrated access device vendors and DSL access multiplexer makers to create a range of offerings for multitenant units and other edge locations.

Quantum Bridge: www.quantumbridge.com

Foundry Networks announced last week that service provider Verio will deploy Foundry's NetIron Internet routers and BigIron Gigabit Ethernet switches in its Web-hosting facilities and backbone aggregation points of presence.

The NetIron routers will support the Virtual Router Redundancy Protocol, and OSPF and BGP4 routing protocols for redundancy and high availability, Foundry says. Foundry's BigIron switches will support 10/100/1000M bit/sec Ethernet interconnectivity.

Start-up pushes IP services scalability

Celox pitches aggregation of multiple access technologies for corporate and mass-market use.

BY DAVID ROHDE

Convinced that large carriers are waiting for even more IP service-creation scalability than offered by recent start-ups, a new company today will announce a service switch supporting up to six million simultaneous users.

Celox Networks will unveil the Celox SCx 192, a combination large-scale access concentrator and IP service switch that provides network-based addressing, security, prioritization and other functions for corporate VPNs and mass-market broadband services.

The SCx 192 has eight I/O slots housing network interface modules with up to OC-192 (10G bit/sec) capacity on a chassis with a midplane architecture with no single central processor. The network interface modules are asymmetric, meaning service providers aren't limited to different size interfaces for line-side and trunk-side connections. Those connections run from DS-3 (45M bit/sec) up to OC-192 on the individual network interface modules, which fully loaded can run an aggregate 80G bit/sec of user traffic.

Bigger pipes for IP services

The Celox IP service switch offers service providers a choice of four network interface modules:

DS-3 (45M bit/sec)
8 ports
ATM interface

OC-3c (155M bit/sec)
16 ports
ATM or packet-over-SONET interface

OC-12c (622M bit/sec)
16 ports
ATM or packet-over-SONET interface

Gigabit Ethernet (1G bit/sec)
8 ports
Native Ethernet interface

The Celox switch supports IP services delivered over DSL, cable modem, native Ethernet or other access-loop technologies, and would typically sit in larger points of presence or super POPs behind termination devices that convert the access traffic into ATM or packet-over-SONET streams. Celox also offers Gigabit Ethernet network interface modules for native Ethernet connections all the way from the user premise to the carrier POP or super POP, most likely for placement onto newly built, optical long-haul backbones.

"The aggregation point for all those technologies is the logical place to add intelligence," says Hugh Kelly, senior vice president for marketing and business development for Celox. Although in its base configuration the Celox SCx 192 costs $600,000, the idea is to relieve large service providers of placing multiple service-creation switches at local telco Class 5 end offices, cable-modem termination switch sites or their equivalent at other types of service providers.

See **Celox**, page 28

Cereva eyes scalable storage for service providers

Start-up expected to speed delivery of rich media content to customers.

BY DENI CONNOR

MARLBOROUGH, MASS. — Start-up Cereva Networks is planning to introduce a storage subsystem early this year that exceeds the scalability and performance of storage and network infrastructure devices now used by ISPs, application service providers and storage service providers to deliver rich media content more quickly to customers.

Currently unnamed, the storage subsystem will exceed one petabyte (1,000 terabytes) of capacity and is suited to very large-scale, high-growth data shops that require flexible and on-demand storage, analysts say.

"The subsystem is designed out of the box to be a rich media system," says Steve Duplessie, an analyst with the Enterprise Storage Group. "Today, users who need 500 terabytes or more of storage cobble together a ton of EMC and Network Appliance file servers and Brocade Fibre Channel switches and have a nightmare on their hands."

The Cereva array will contain switching capability and the ability to remove much of the processing that is done on the CPU itself. It will also have fault-tolerant features, such as redundant power supplies and fans.

It supports different drive sizes, and companies can add drives without disrupting system uptime, as they need more

See **Cereva**, page 28

PROFILE: CEREVA NETWORKS

Location:	Marlborough, Mass.
Founded:	April 1998 by Raju Bopardikar, chief technology officer, and Alan Lutz, CEO and president.
Product:	Storage subsystem for ISP, ASPs and storage service providers.
Managers' backgrounds:	IBM, Thinking Machines, Compaq, Newbridge Networks, Cabletron
Financing:	$110 million from Oak Investment Partners, NorthBridge Venture Partners, Matrix Partners, Worldview Technology Partners, Intel, Global Crossing and Comdisco.
Employees:	240
Fun fact:	The founder's middle name, Chintamani, means the physical manifestation of Ganesh, the Hindu god known as "the remover of obstacles." Ganesh is the first god invoked at the beginning of a new company.

Verizon takes in-building telecom service plunge

BY DAVID ROHDE

NEW YORK — Mega-Bell Verizon has finally found a competitive local exchange carrier segment it likes.

After dropping its merger with DSL service provider NorthPoint Communications, Verizon has quietly held onto a less well-known provider of in-building telecommunications services.

During the holiday period, Verizon closed an acquisition of CLEC OnePoint Communications that it had announced last August, and renamed the unit Verizon Avenue.

The key for Verizon in going ahead with the OnePoint deal was a critical network-edge issue: The subsidiary locates switching equipment inside multitenant buildings and from there runs DSL over short copper loops up the risers or to nearby buildings.

"All circuits will be well within the distance limitations of DSL, making Verizon Avenue's high-speed Internet access available to every resident or tenant in a Verizon Avenue building," Verizon Avenue CEO Jim Otterbeck says.

Today, Verizon Avenue principally serves apartment buildings. Now the unit will go after office buildings as well, competing with such established providers as Intermedia's Advanced Buildings Networks unit, plus numerous start-ups backed by real estate investment trusts and other commercial real estate interests.

In addition, the acquisition addresses Verizon's need to begin serving local customers outside its territory, which was recently swelled by the merger of Bell Atlantic and GTE. Verizon Avenue has contracts to serve buildings in 31 states, including such out-of-region markets for Verizon as Atlanta, Charlotte, N.C., Chicago, Denver and Phoenix. The Bell Atlantic/GTE merger agreement includes a requirement imposed by the Federal Communications Commission for Verizon to spend at least $500 million in capital on CLEC operations outside its own territories.

Verizon's move especially threatens broadband cable providers, according to a report from market watcher Current Analysis. "In densely populated areas, DSL equipment in one or two multidwelling units could serve multiple surrounding buildings," the report says.

Indeed, Verizon says it aims to increase Verizon Avenue's level of available buildings from 690,000 dwelling or office units today to two million within five years. But Verizon faces hurdles in achieving those goals, according to Current Analysis.

First, Verizon Avenue's building contracts are generally not exclusive. Second, competing DSL providers may complain about a dominant carrier such as Verizon extending DSL equipment to areas with little or no collocation space such as in-building wiring closets. That could engender the kind of delays caused when independent DSL carriers complained to the government about SBC Communications' move to put DSL termination equipment in small neighborhood terminals rather than central offices under its Project Pronto scheme.

Those DSL competitors may have one advantage over Verizon Avenue. In the original Bell Atlantic region — from Maine to Virginia — the unit will not be allowed to bundle long-distance with local voice, Internet access and video services until the parent Verizon company wins long-distance authority for those states. Verizon has long-distance authority only for New York and last month withdrew an application for Massachusetts.

More information about Verizon Avenue's services is available at www.onepointcom.com.

A slice of the market

The newly renamed Verizon Avenue has marketing contracts for 690,000 of the nation's multiple dwelling units (MDU). The total number of MDUs in the U.S. is now estimated at 20 million.

SOURCE: VERIZON, WASHINGTON, D.C., AND CURRENT ANALYSIS

Celox,
continued from page 27

Celox executives make no bones that they're gunning for large carriers, and the company has a strong AT&T connection. It hired as its chief operating officer Joe Lueckenhoff, who headed AT&T's data services marketing during the mid-1990s when it recovered from a late start to take the lead in frame relay and ATM market share.

According to Kelly, the switch will initially be trialed by the AT&T Global Network Services division, formerly the IBM Global Network. But the box was also designed with cable providers, including AT&T Broadband, in mind. It has a feature called "secure segmentation" that can segment the traffic from different service providers on the same access pipe — a feature that cable providers will need if the industry or government mandates open access.

The key to Celox's scalability is a hybrid of hardware- and software-based switching that takes account of just enough higher-layer protocol information to populate a proprietary "summary cell" with key quality-of-service and other information. IP service creation vendors that switch entirely in hardware have "high performance but also high risk," says Kelly, because "if the market changes on you you're stuck because you've done it in hardware."

Celox software upgrades will take account of standards development, but the Celox box begins with support for such emerging specs as Multiprotocol Label Switching (MPLS). That's key for carriers — including AT&T and WorldCom — which use MPLS labels over an ATM backbone to create the equivalent of a meshed corporate WAN using only one frame relay interface at each network location.

Celox doesn't go as far as competitor CoSine Communications, whose IPSX 9000 service switch directly supports frame relay user interfaces (www.nwfusion.com, DocFinder: 2433). But that's because the Celox gear generally would sit further upstream in the carrier network, Kelly explains, and by that point large carriers generally have converted even their users' frame relay traffic to ATM cells for backbone transport. Celox also will compete with Nortel Network's Shasta IP services switches and Lucent's recent acquisition of Spring Tide Networks.

The SCx 192 is expected to ship in June.

Celox: www.celoxnetworks.com

www.nwfusion.com
MPLS TRAINING
Need to bone up on the latest MPLS techniques? The MPLS resource center features a list of more than 10 conferences and courses.
DocFinder 2432
find it 2432 online

Cereva,
continued from page 27

storage while maintaining their investment protection. "The SSP market has to have the ability to provide storage on demand without disrupting operations," says Adam Couture, an analyst with Gartner Group. "Customers need to be able to access storage instantly depending on the traffic spikes in their businesses. The ability of the Cereva array to compartmentalize storage into a single shared resource is important."

For Peter Kirwin, chief technology officer of managed hosting company Navisite in Andover, Mass., the Cereva array "enables 'utility' computing models, with more usage-based pricing and less wasted storage for customers."

Duplessie says the Cereva array will be able to handle storing the same text and numbers that traditional RAID storage arrays do, as well as multiple concurrent video streams from different users.

Navisite recently streamed a Madonna concert to a reported nine million viewers using 700M bit/sec streams. A device such as the Cereva box, which can handle large-scale streaming events, would be ideal for this purpose, Kirwin says.

"Storage demands are skyrocketing for databases but more importantly, for rich media, especially streaming," Kirwin says. "We believe streaming will explode in 2001, especially in the enterprise market. This is new to many companies, and they can't predict storage needs, so having a massive scale upside is helpful."

Cereva's subsystem will be rack-mounted and capable of expansion. Initially, a single subsystem will consist of seven 7-foot rack enclosures, each containing 17 terabytes of disk space for a total of almost 120 terabytes, which can connect to "hundreds and hundreds of servers," the company claims. Equipment from EMC, Hitachi Data Systems and Hewlett-Packard has upward capacities ranging from 27 to 37 terabytes.

The Cereva subsystem attaches to the Internet via routers, Layer 4 switches and reverse proxy caching devices. It also has multiple Fibre Channel connections to storage-area networks for block and streaming media data, and Gigabit Ethernet connections for network-attached storage, HTTP or FTP data.

The Gartner Group estimates the size of the SSP market alone will grow from $10 million in 1999 to more than $7.5 billion in 2003.

Founded and managed by veterans of IBM, Thinking Machines, Cabletron, Compaq and Newbridge Networks, well-heeled Cereva is expected to beta-test its subsystem this quarter. The company received $110 million in venture backing from a variety of investment partners.

Cereva: www.cereva.com

Enterprise Applications

Intranets, Messaging/Groupware, E-commerce, Security, VPNs, Network Management, Directories

Briefs

Palm has announced a trial version of its MyPalm portal, where users can download online services from Palm, such as e-mail and a calendar, through their PDAs. Information that can be downloaded from the beta site is specifically formatted for handheld screens. Users can gain access to the site via the Web from a PC, or wirelessly through the MyPalm downloadable Web Clipping application. From the site, users can access e-mail, synchronize their Palm calendars or download things such as news, business applications and shopping information.

The MyPalm portal and Web clipping application are available free at www.palm.net.

IBM and **EzGov** recently announced an alliance to jointly market and deliver e-commerce packages to local governments. Under the terms of the agreement, the two companies will jointly market EzGov's e-government software and IBM's eServers, as well as WebSphere, WebSphere Commerce Suite and DB2 Universal Database as the development platforms of choice for EzGov applications. The EzGov LocalSuite includes a citizen portal tool kit, online payment of property taxes, utility bills, parking tickets and moving violations. Gartner Group projects that spending for state and local government software and hardware will exceed $1.1 billion by this year, up from $600 million in 1999. According to Forrester Research, more than 14,000 e-government services will be available online nationwide by 2006. The majority of these services will come from the nation's 35,000 cities and towns.

IBM: www.ibm.com; EzGov: www.ezgov.com

SnapNames back-orders domain names

New Web site will help companies keep up with name registrations.

BY CAROLYN DUFFY MARSAN

A Web site launching this month will monitor Internet domain name registrations globally and allow corporations to back-order names that were previously owned by competitors or speculators.

Available at www.SnapNames.com, the new service is the first of its kind, according to industry watchers.

"Nobody else is even attempting to do what SnapNames does," says James Grady, associate analyst with Giga Information Group. "They'll have the first-mover advantage for at least six months, if not a year."

Every day, 10,000 domain name registrations expire, according to SnapNames. Names can expire because the owners aren't using them or owners forget to renew their registrations, as in recent cases involving Hotmail and J.P. Morgan. SnapNames monitors Domain Name System (DNS) traffic to identify expirations and instantly acquires names for companies that have preregistered them.

www.nwfusion.com

DEFENDING YOUR DOMAIN

Download VeriSign's "Domain name facts and future trends" to learn how you can protect your brand from being registered by others.

DocFinder 2429

find it online

"The need for this kind of service is there," Grady says. "Companies are accidentally or negligently letting their domain names expire. SnapNames will notify them and help them get their names back."

Underpinning the SnapNames site is a real-time monitoring system for the Registry/Registrar Protocol used by VeriSign, the central registry for all domain names in .com, .net and .org, and its 60 accredited registrars. When one of the registrars sends an addition, deletion or modification to a DNS record, SnapNames receives a copy of that change and maintains its own comprehensive database of domain name registrations called Whois.

"We're an agnostic third-party like the companies that do credit reporting for the banking industry," SnapNames

See **SnapNames**, page 32

Getting to the root of net management problems

Vendors are finally offering products that can pinpoint network performance problems.

BY DENISE DUBIE

Getting to the bottom of a network problem has never been easy, but new and existing products that perform root-cause analysis can ease the pain.

At least that's the conclusion of a new report recently released by Enterprise Management Associations (EMA). The report says vendors are finally offering users root-cause analysis products that can be deployed quickly and can provide, on average, 70% accuracy when dissecting network problems.

The products have intelligence and eliminate the need for human intervention in some cases, says Dennis Drogseth, a director with EMA.

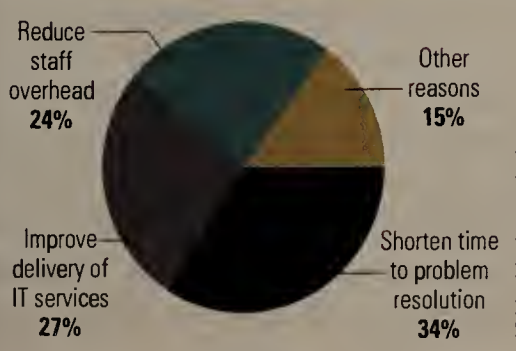
While root-cause analysis — the ability to isolate specific points of failure — may be gaining some steam, it is hardly new.

Vendors — such as Aprisma — claim their products have performed some type of root-cause analysis for years. Root-cause technology can pinpoint a

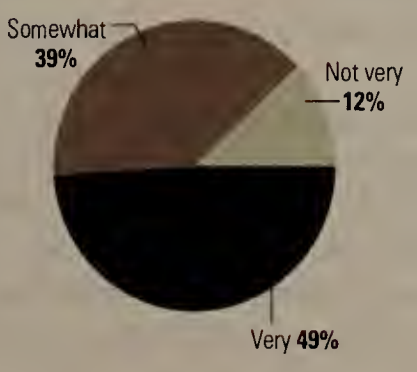
See **Root-cause analysis**, page 32

Getting to the bottom of root-cause analysis

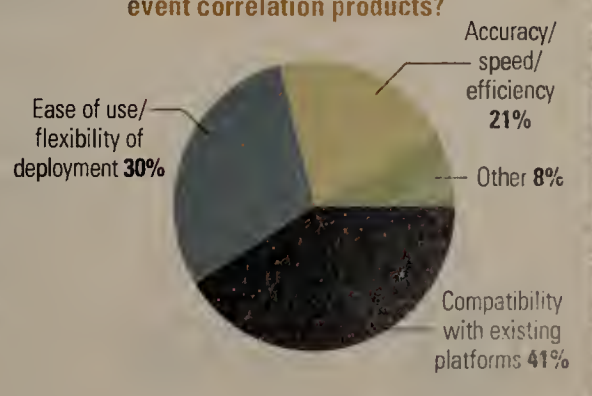
What's your main reason for using root-cause/event correlation technology?



How satisifed are you with the technology?



What is your top selection criterion for root cause/ event correlation products?



Based on a survey of 135 respondents: 47% large enterprise customers, 37% small to midsize companies and 16% service providers.

SOURCE: ENTERPRISE MANAGEMENT ASSOCIATES

THE MYTHICAL FIVE NINES. 99.999%. AS CLOSE TO PERFECT

For a server operating system, the five nines are a measure of reliability that translates into just over five minutes of server downtime per year.* Of course, rumors of this 99.999% uptime usually start under ideal lab conditions. But where are these five nines when your company needs them? If you're using Microsoft® Windows® 2000 Server–based solutions, they may be closer than you think. Today Starbucks, FreeMarkets and MortgageRamp, an affiliate of GMAC Commercial Mortgage, are using Windows 2000 Server–based systems that are designed to deliver 99.999% server uptime. With system architecture improvements for higher server uptime plus fault-tolerant and redundant systems for increased availability, the Windows 2000 Server platform is helping these companies maximize

Microsoft Windows 2000 Server Family

*This level of availability is dependent on many factors outside of the operating system, including other hardware and software technologies, mission-critical operational processes and professional services. © 2000 Microsoft Corporation. All rights reserved. Microsoft, Windows, and the Windows logo are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. The names of actual companies and products mentioned herein may be the trademarks of their respective owners.

AS YOU CAN GET WITHOUT BREAKING SOME LAW OF NATURE.

uptime and minimize network interruptions. But a server OS alone doesn't get you five nines, which is why we've teamed up with industry-leading system providers to ensure that the right combination of people, process and technology is utilized. Industry leaders such as Compaq, Hewlett-Packard, Unisys, Stratus and Motorola Computer Group can work with you to deliver solutions with up to five nines uptime with their custom-built Windows 2000 Servers shipping today. Of course, not all installations require this level of reliability, but one thing is for sure: The Windows 2000 Server family can help you get to the level of reliability you need, even five nines. To learn more about server solutions you can count on, visit **microsoft.com/windows2000/servers** Software for the Agile Business.

Microsoft

'Net Insider . Scott Bradner

ADVICE FOR GW

Eight years was a long time even before the Internet, and it is much longer now.

Eight years is the length of time I've been writing this column. It is also the length of time that the Clinton/Gore administration has been in power (if that is a reasonable term in these days of political turmoil).

During the past eight years, the Internet has moved from "never heard of it" to "the cause of the Nasdaq collapse." The Internet has flourished in an environment of mostly benign regulatory neglect. There have been some exceptions, such as the Communications Decency Act, but on the whole the Clinton administration's regulators left the Internet alone.

Considering what some people proposed, neglect was a good thing. But in a few cases maybe it was too much of a good thing. So herein is some unsolicited advice for the incoming Bush administration:

- Follow traditional instincts to minimize regulations affecting the 'Net.
- Remember, the Internet is not a phone company. Nor is it a cable TV company. Do not regulate it as if it were either.
- The Internet is a disruptive technology, so let it disrupt — innovation comes from this type of disruption. Do not try to "guidc" the technology (to use a Newt Gingrich concept). For example, do not define Internet-based phone service; let the innovators do that.
- Do not try to protect the incumbent service providers. That would be as forward thinking as protecting the horse dung recyclers against the auto a hundred years ago. Fight against any effort anywhere to outlaw Internet-based telephony.
- Don't single out the Internet for special — positive or negative — tax treatment. For example, all cross-state line sales should be treated the same whether Internet, phone or letter initiated. But the rules need to be understandable and universal (at least for U.S.-based sellers).
- Empower the individual and remove the government from Internet content control. The inevitable result of government content regulation is politically correct pabulum. Remove the current federal requirement for filtering software in schools and libraries. Let local people decide on their own.

Al Gore did help invent the Internet. His legislation helped fund the research that got us to this point. But the job is not done. There is more to be invented. Federal funding for technology research should be increased and a mandate issued to fund more cutting-edge research — research which, by definition, may fail.

Regulations are needed in one area. The previous administration licked the boots of those that sell personal information. Individual Internet users must be given control over their own information with criminal penalties for companies and individuals that violate that control.

Now that the stock market seems to be over its irrational exuberance about all things Internet, we have a chance to look at this collection of technologies in a calmer and more rational way. The 'Net will continue to have a profound impact on the economy and society. If you let it do so.

Disclaimer: Harvard, whose new president may be harder to select than George W. Bush due to the chad-less process, has expressed no opinions on the above.

Bradner is a consultant with Harvard University's University Information Systems. He can be reached at sob@sobco.com.

SnapNames,
continued from page 29

founder and CEO Ron Wiener explains. "We've gone to the registrars and said: 'If you participate in this system, everybody benefits.' Part of the deal is that they have to give us instant access to their Whois databases. . . . We get that at no charge, and they get a percentage of the revenue we do."

So far, SnapNames is working with six registrars: Tucows, BulkRegister, eNom, Dotster, NetNames and NamesDirect. Wiener says he is in discussions with VeriSign's Network Solutions division as well as Register.com.

SnapNames is offering domain name monitoring services targeted toward large corporations, Web site design shops and law firms specializing in intellectual property practices. SnapNames' initial services — now in beta mode — are:

- Snap-Back Service, which monitors changes to a current name owners' DNS records and provides instant alerts to the owner or to the prospective owner. The service alerts owners if a domain name expires, is transferred to a different registrar, or is hijacked by another Web server. If the domain name expires, SnapNames will buy it back on the current owner's or prospective owner's behalf. The service costs $35 for three years per domain name.
- Snap-Shot Service, which monitors changes to domain name registration records and provides weekly status reports but doesn't include automatic repurchases or back ordering. This service is designed for companies that want to track many names owned by competitors. The Snap-Shot Service for the first 20 domain names is free; a 100-name subscription costs $20.

Both services take advantage of SnapNames' comprehensive searching capability that shows all the available top-level domains and multilingual variants of a particular name. The site provides a single order form for registering or back-ordering large volumes of domain names with partner registrars.

SnapNames will use its database of information about prospective domain name owners to facilitate auctions of inactive and expired domain names. Companies that participate in the Snap-Shot Service will be notified when a name they've been tracking is up for bid. SnapNames will take a cut of the proceeds for successful auctions.

"SnapNames has taken a different tack than the other services on the market," says Ross Rader, director of research and innovation at Tucows. "What they allow you to do is find your name and protect it. Once you've acquired a name, they help you hold on to it. And they help you auction it if you don't want it anymore."

The launch of SnapNames is part of a trend toward a growing secondary market for domain names. For example, VeriSign in October purchased GreatDomains.com, an auction site that helps owners resell their domain names.

"More money exchanges hands with the resale of a domain name vs. the sale of a new name," Grady points out. "You can buy new names for as low as $15. Resale prices are much higher than that, although they are coming down."

Founded a year ago, SnapNames is a Portland, Ore., start-up with 45 employees. The company received $1.8 million in its first round of venture financing and now hopes to attract $2 million or more in its second round.

Overall, about 24 million domain names have been registered in .com, .net and .org. About 90% of those names are inactive, which is one cause of the high rate of expirations.

SnapNames: www.snapnames.com

PROFILE: SNAPNAMES

Location:	Portland, Ore.
Founded:	Jan. 2000
Service:	Web site for back-ordering domain names.
CEO:	Ron Wiener
Financing:	$1.8 million
Employees:	45
Beta customer:	Seattle law firm Stoel Rives
Fun fact:	About 90% of the domain names registered in .com, .net and .org are inactive.

Root-cause analysis,
continued from page 29

problem on the network, a port on a device and, in some instances, perform automated healing tasks.

"The most common complaints about root cause have been that the products take a long time to deploy and that things change so much it's hard to stay current," Drogseth says. Although he says users should still be suspect of vendor claims of "out-of-the-box" implementations, EMA's findings show that implementations that once took from six to nine months have been whittled down to weeks and, in some cases, days.

Root-cause products remain costly — with prices ranging from tens to hundreds of thousands of dollars, but the technology's benefits can far outweigh any upfront costs.

With most large organizations facing IT staff shortages, technology that can automate network performance monitoring can handle low-level network monitoring, freeing skilled staff members for higher-level network troubleshooting and firefighting.

Start-ups such as Oxydian, Magnum Technologies and Evidian offer automated event-correlation and self-configuring products intended to boost network management with root-cause analysis features. Big-name competitors such as Tivoli, Computer Associates, BMC Software and Hewlett-Packard have also upgraded their offerings to better support root-cause features. ◪

Technology Update

An Inside Look at the Technologies and Standards Shaping Your Network

Ask Dr. Intranet

By Steve Blass

I can't find any information on Service Location Protocol (SLP). Can you offer any help on how to set it up and what to look for?

NetWare 5 introduced the use of SLP to dynamically discover network services. SLP, defined in RFC 2165, specifies the use of user, service and directory agents. Directory agents provide the repository for information registered by service agents that user agents query. Instructions for setting up SLP can be found at www.ithow to.com/Novell/PureIP.htm. Type "LOAD SLPDA" on your server console. Assuming your server contains a replica of the NDS, answer yes to accept the default configuration the first time the SLP directory agent is loaded and add "LOAD SLPDA" to your autoexec.ncf. On clients, select "properties" on the network neighborhood icon, select "services," then "Novell client for Windows NT" and click the properties button. Select "service location" and enter the IP addresses of the server you loaded SLPDA on and select "static." Now select "protocol preferences" and deselect components you're not using, then make sure IP is your preferred network protocol. More information on SLP configuration and management in mixed IP/IPX and large network environments is at http://developer.novell.com/research/appnotes/2000/april/02/apv.htm and at www.nwconnection.com /jul.98/slp78.

Blass is a network architect at Sprint Enterprise Services in Houston. He can be reached at dr.intranet@paranet.com.

The end of DWDM as we know it?

BY SPENCER GIACALONE

Dense wave division multiplexing recently burst onto the network scene promising dramatically increased data transport capacity with relatively low cost. Now intense development is focused on transforming DWDM into something radically different — and better. So sweeping are the proposed upgrades, they're being described as a new technology, with titles such as lambda switching.

Like DWDM, lambda switching uses small amounts of fiber-optic cable and differing light wavelengths (called lambdas) to transport many high-speed datastreams to their destinations. But unlike DWDM, lambda switching injects intelligence, built around a set of evolving industry standards, into optical network gear.

Lambda-switching technology will provide optical network managers with benefits such as the ability to engineer traffic (specifying how, when and where data flows), while offering innovative services using equipment from multiple vendors. With lambda switching, new optical net designs can be implemented to provide customers with better performance. It also can ease management while boosting fault tolerance to unprecedented levels.

The key to lambda switching is the ability to automatically connect optical network endpoints. In the past, arranging optical net communications required tedious, expensive configuration of each device, fiber, lambda and even higher-level protocols such as SONET and routing.

Because lambda switching connections, or light paths, are set up on the fly, using a scheme that's integrated with upper-layer protocols, network configuration can be simplified. And because light paths streamline operation, highly redundant network designs, previously deemed impossible to manage, can now be built.

When a new technology's shrink-wrapped package boasts of simple operation and increased flexibility, there's likely to be more complexity inside, and lambda switching is no exception. Light paths are dynamic compositions of wavelengths that flash across the fibers interconnecting lambda-switching equipment called optical cross connects (OXC).

OXCs are expected to rely on optically upgraded versions of already tough-to-understand technologies, including advanced routing protocols and Multi-protocol Label Switching (MPLS).

Light paths are usually based on the information distributed by lambda switching variants of protocols such as the Open Shortest Path First (OSPF) routing protocol. In addition to permitting OXCs to advertise network reachability information (over dedicated "control lambdas"), extended OSPF might provide detailed data regarding bandwidth, quality of service and more. Using the information presented by extended OSPF, each OXC can form network topology maps, called traffic engineering tables, readying them for subsequent lambda switching steps.

The next phase of light path construction — signaling — will probably fall to enhanced MPLS and adaptations of protocols such as Resource Reservation Protocol (RSVP). When a connection between optical endpoints is needed, ingress OXCs can send extended RSVP setup messages requesting that downstream OXCs provide one or more lambdas (or SONET channel-associated MPLS labels to upstream neighbors. When each OXC between ingress and egress assigns a label, the optical connection is complete and ready to transport data arriving at the lambda switching net edge.

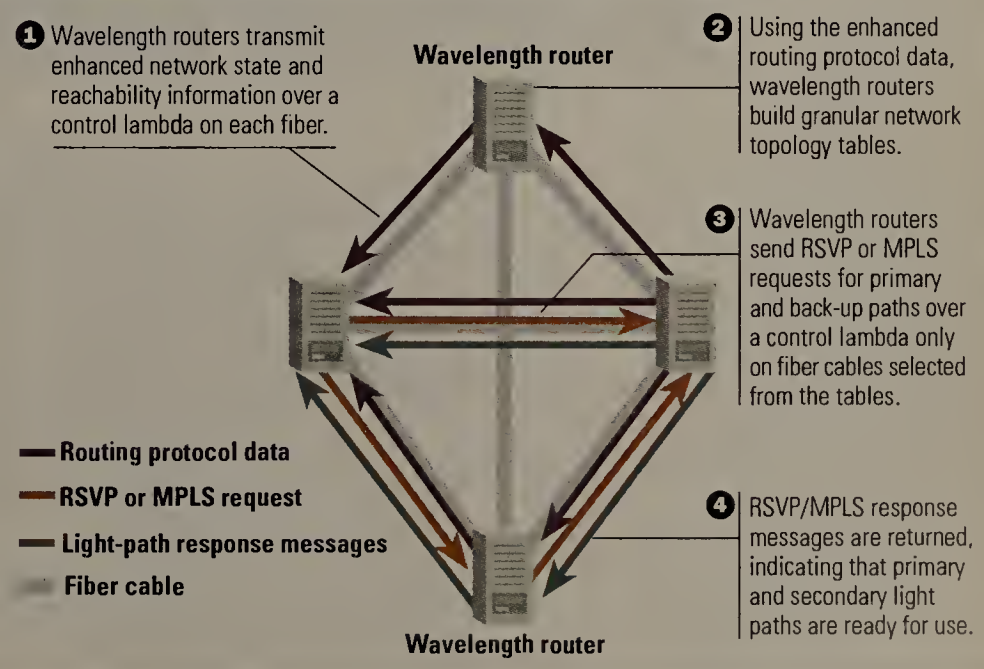
Lambda switching promises numerous benefits, but there is work left to determine how standard protocols will deliver them. Judging from the enormous developmental energy converging on lambda switching, it might be the end of DWDM.

Giacalone is a principal consultant at Predictive Systems, an international network consulting firm. He can be reached at spencergiacalone@predictive.com.

HOW IT WORKS

Lambda switching using enhanced MPLS and routing

Lambda switching uses small amounts of fiber-optic cable and differing light wavelengths to automatically connect optical network endpoints.



Got great ideas?

Network World **is looking for great ideas for future Tech Updates. If you've got one, and want to contribute it to a future issue, contact Neal Weinberg, Features Editor (nweinberg@nww.com).**

Gearhead . inside the network machine . Mark Gibbs

GIRDING FOR THE NEW YEAR

Happy New Year! Welcome not only to the start of a clean, shiny year and a new millennium, but also to an answer to the mystery ports that surfaced on our NT server last year.

If you recall, in December (www.nwfusion.com, DocFinder: 2434) we were discussing port scanning and a freeware monitoring utility called Attacker from Foundstone (www.foundstone.com). Attacker acts as an early warning system for hacker attacks.

Attacker monitors TCP/IP traffic and logs all connection attempts. Our problem turned out to be due to our misunderstanding (and lack of documentation) of how Attacker works.

When you set up Attacker it lets you select which TCP and UDP ports are to be monitored. In operation, Attacker creates standard ports that reply with an acknowledgement to all connection attempts. Our problems arose from our assumption that Attacker would use "stealthed" ports — ports that don't reply with an acknowledgment unless a service is behind them.

With Attacker's design, opening a port that has no service behind it will reveal that the port does nothing, and the hacker will eventually go away (hopefully).

But when we scanned the machine using Attacker, we found ports for hackers' favorite remote control tools, Back Orifice and NetBus. As we had wrongly expected Attacker to only monitor the ports in stealth mode, we concluded we had a serious problem.

We discovered the answer when we rebooted the server and found that our mail server software couldn't open ports 25 and 110 (Simple Mail Transfer Protocol and Post Office Protocol 3, respectively) — ports that our copy of Attacker was set to monitor. Attacker actually opens ports in shared mode and can normally do so successfully if it loads after anything else that will use the port.

But if Attacker loads first, any other program that expects exclusive use of a port Attacker has already opened will fail to open the port.

All terribly logical and straightforward if you know where to look and aren't freaked out by the apparent presence of installed hackerware.

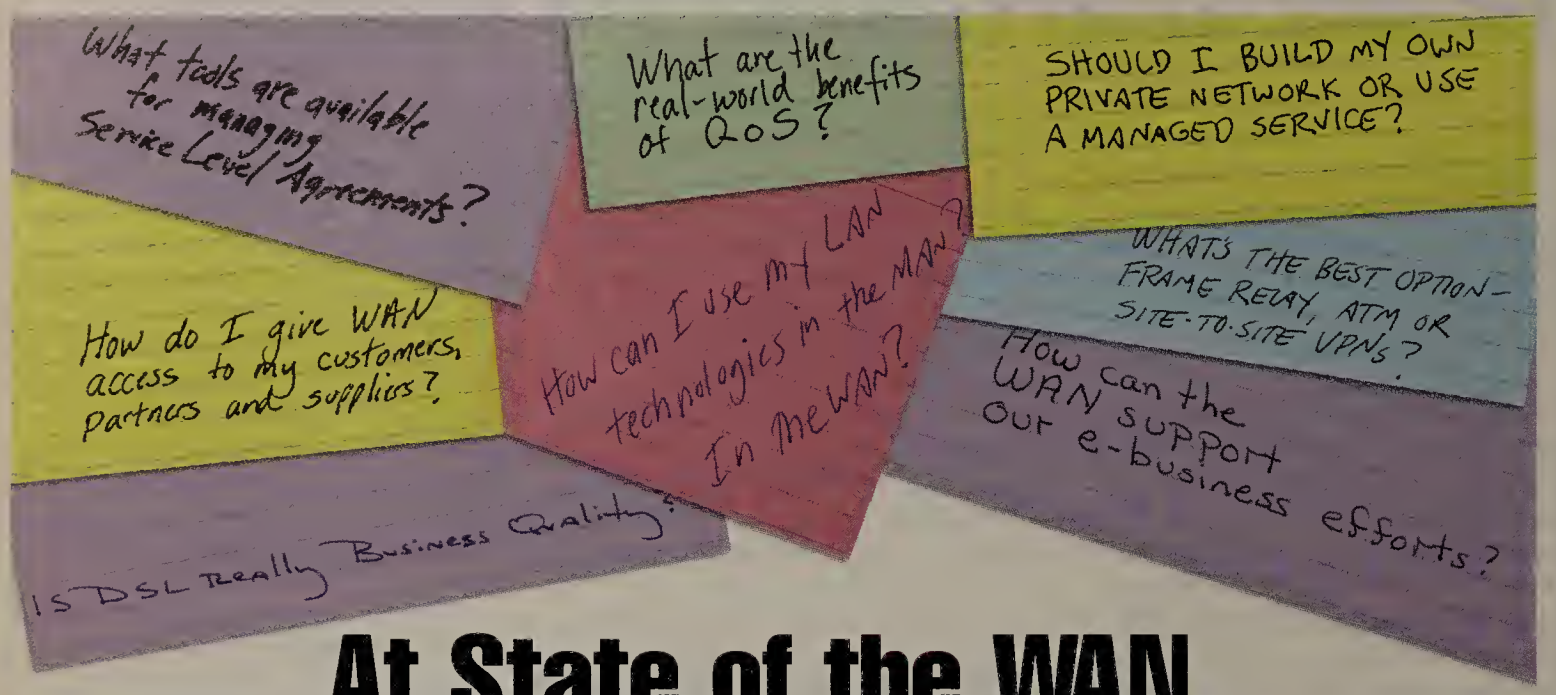
But this raises the question of whether running Attacker is a good thing. Because the monitored ports are not stealthed, any hacker sweeping an IP address range looking for victims will find what looks like a target.

This might be useful because it will show you how often the bad guys are in your neck of the woods and you can use it to show management that a threat exists. On the other hand, you might also bring unwanted attention to yourself.

As Steve Gibson of Gibson Research Corporation says on his Web server (www.grc.com) of unstealthed monitors: "Using one of these so-called monitors is like leaving your front door unlocked and slightly ajar in the hopes of catching a burglar: You might well lure someone into your home, but then you have an entirely different problem!"

So now that our NT server has a clean bill of health and our port mysteries are solved, we can advance into the New Year girding our loins with cheap girders.

New Year's resolutions to gearhead@gibbs.com.



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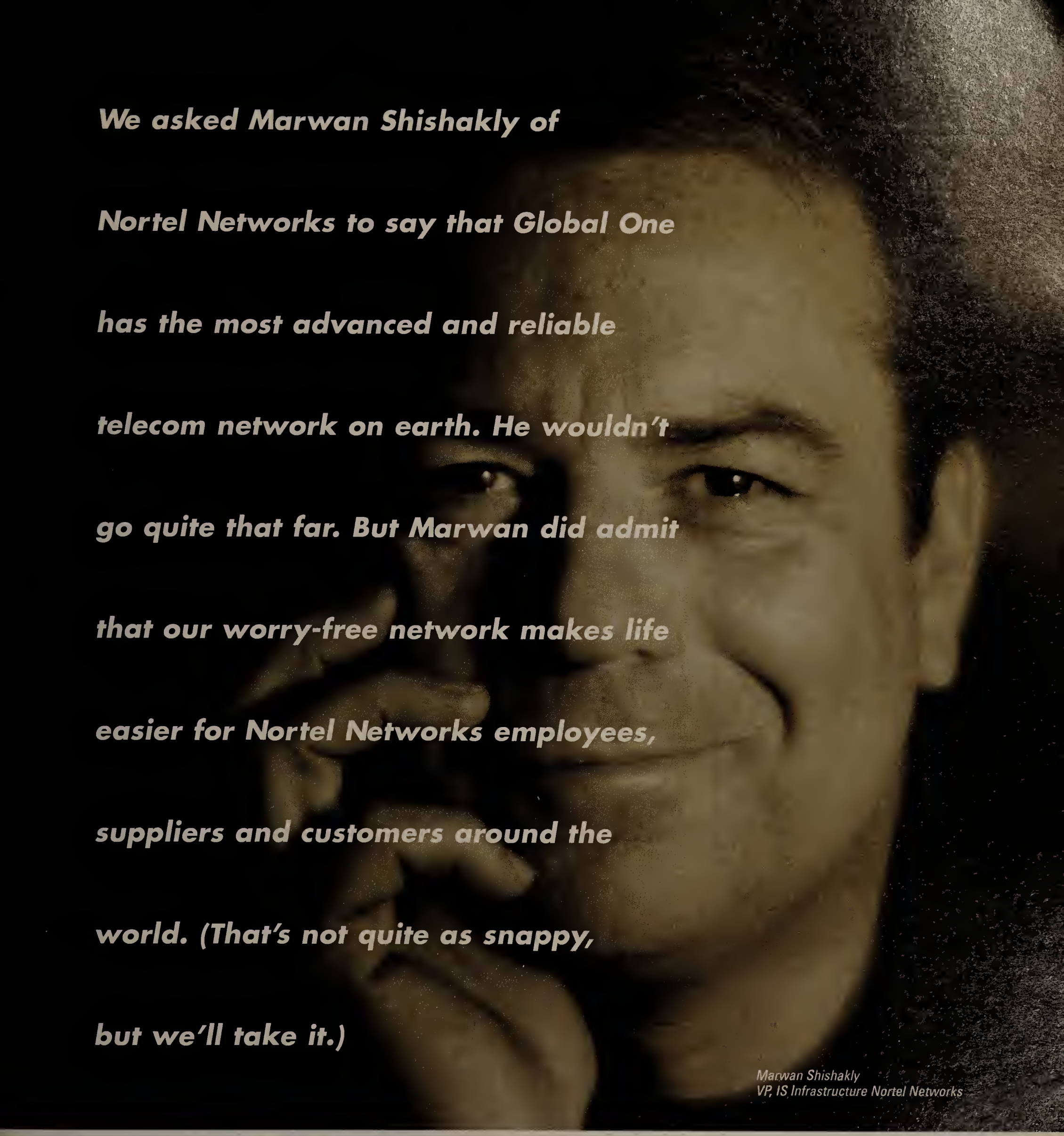

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Opinions

Editorial

As goes tech stocks so goes the economy?

It's interesting to read all the year-end reflections about the implosion of technology stocks.

After treating the sector as the second coming and running the stocks up through the roof on nothing more than momentum, Wall Street acted surprised to see it all come tumbling down. Now the question of the day is, is the sector down for good or can we expect some more unbridled optimism to run it back up?

There certainly are some black clouds out there. The telecom market as a whole seems like something of a mess, what with AT&T's and WorldCom's woes and the competitive local exchange carrier failures. And the stocks of perennial powerhouses Cisco, Microsoft, IBM and Oracle are all getting knocked around.

Combined, Cisco and Microsoft have lost about $500 billion in market capitalization (the value of outstanding shares) since March when they had both crested the $500 billion mark. Today, Cisco's market cap is $297 billion and Microsoft's is $255 billion.

Those are still astounding numbers, but the world has come to expect more from these market leaders. It isn't enough that Cisco reported a revenue increase of 66% to $6.52 billion for the 13 weeks that ended Oct. 28. Some of the confidence about the future is gone.

That's the baffling part. It is almost as if Wall Street is saying corporate America's reliance on technology has somehow abated.

It seems to me the world has wrongly attached the technology sector to the dot-com phenomena. The tech sector unjustifiably rode up on the back of the dot-com euphoria and, when it evaporated, rode it back down.

But the failure of 100 or so dot-coms doesn't change the need for your average company to become a networked enterprise. They need technology to increase efficiency, realize new business opportunities and achieve competitive advantage.

So is the air out of our tech sector for good, or are we simply witnessing a midcourse correction? I'm not a Wall Street analyst, but show me a major U.S. corporation that thinks it's too well connected and I'll eat this column.

My guess is that, as we get beyond the dot-com failures, we'll see the Street come running back to technology. Whether the economy comes along with it is a different matter.

— John Dix
Editor in chief
jdix@nww.com

Message Queue

DELAY DISMAY

I loved your story "Frame relay delays create nightmare for two Mass. firms" (www.nwfusion.com, DocFinder: 2423). I am working with three power plants throughout New York. I have two 56K bit/sec frame relay lines and one DSL line on order through two ISPs — some back as far as July! Disasters. They can't even locate jobs when I give them order numbers.

Thanks for letting me know I'm not alone.

Jim Crowley
Crowley Computer Consulting
Ogdensburg N.Y.

BSD FAN

Thank you for Paul Hoffman's column "Beyond Windows and Linux: Discovering the BSDs" (www.nwfusion.com, DocFinder: 2424). The piece was well-written and gave a great, quick overview. Hopefully your publication will offer more content (news, features and reviews) about the BSDs that impact the networked world.

Jeremy Reed
Marysville, Wash.

SPEAKING UP FOR S/MIME

James Kobielus's column "Universal secure messaging will rely on outsourcers" (www.nwfusion.com, DocFinder: 2425) made a number of good points. I agree there is too high a reliance on insecure e-mail, and this needs to be addressed to support many emerging e-commerce applications.

While Kobielus is correct that few firms and individuals have taken up S/MIME, I disagree with his analysis as to why this is so. He argues that the complexities of public-key infrastructure (PKI) will prevent general adoption of S/MIME and, as a consequence, secure messaging will happen through use of application service providers. Many people and firms would like secure e-mail, but few would be prepared to change the way they manage their e-mail to achieve this. Consequently, any scheme that requires people to do things differently for secure mail will not get widespread adoption.

In this context, S/MIME is an attractive approach to the provision of secure e-mail. It is provided in the commonly used e-mail desktops, and is likely to spread (including to services such as AOL and Hotmail). As a consequence, S/MIME can be adopted without change to existing e-mail usage. S/MIME has good security characteristics and is scalable. Because it is vendor-neutral, S/MIME services can also grow without lock-in to a single vendor, which is key to universal adoption.

There are two related reasons why S/MIME deployment has been held back. The first is the myth that the deployment of digital certificates (necessary to use S/MIME and to enable digital signatures and all the legal benefits) requires a complex and sophisticated PKI. The requirements for most deployments of S/MIME are quite straightforward. The large PKI vendors and consultants have done much damage by overstating complexity and generality of approach, which has led to expensive and not particularly successful implementations. The solution is to lead with the messaging application, and then provide security infrastructure transparently.

The second problem relates to the available and widely used S/MIME clients, which generally require too much effort and knowledge from the end user. This will be solved as the interfaces evolve in a competitive marketplace. Early large-scale adoption of S/MIME will be driven by applications such as Electronic Statement Delivery, which requires only user reception of secure documents, statements and bills.

Steve Kille
Chief strategy officer
MessagingDirect
South San Francisco

MADE-UP WORDS

Regarding Mark Gibbs' "Backspin" column on invented words ("The e-future of Itenglish," www.nwfusion.com, DocFinder: 2426). Marketing people invent these words to create an illusion of hipness for things that are inherently unhip. It's pathetic how everything, even technology, must be artificially popularized to the extent that it's all just dolt-fodder.

Cory Rau
New York

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

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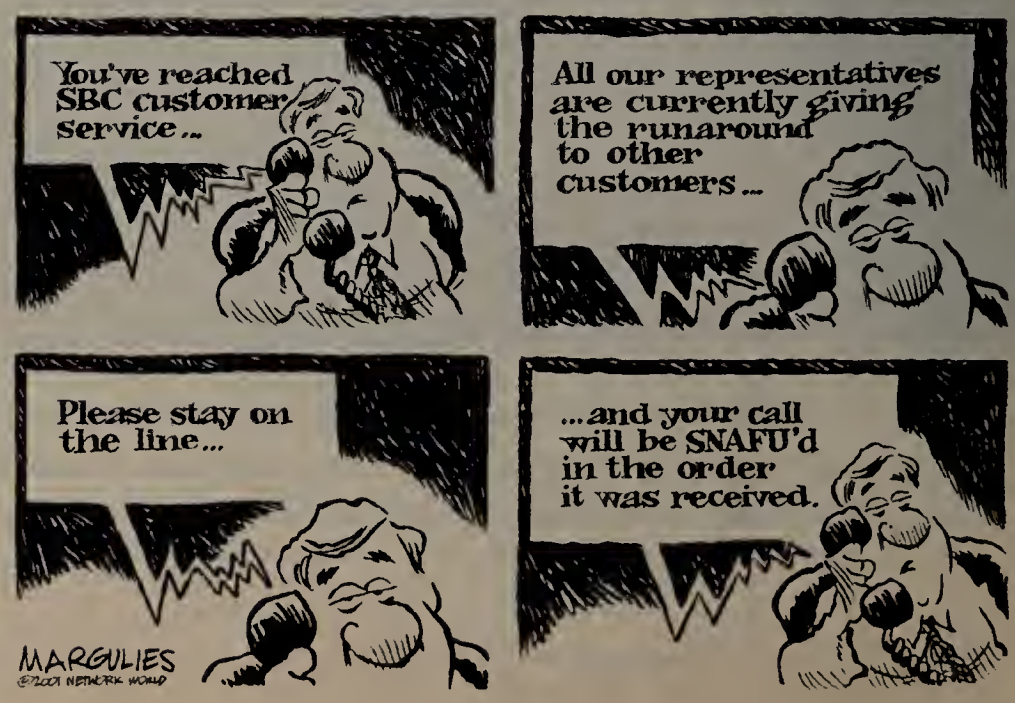

Intranet Adviser . Daniel Blum

How to decide whether outsourcing is for you

Organizations without a centralized IT department often turn to application service providers or outsourcers. But in doing so, they usually discover there's no quick fix to their IT needs.

Organizations with fractured IT environments include companies cobbled together through mergers or acquisitions, companies whose IT organizations may have grown organically in a decentralized manner, and departments of public sector organizations that have been allowed to operate relatively autonomously.

Sooner or later, top management decides something's broken. The pendulum swings, and the company launches centralization or consolidation efforts to fix anything from corporate e-mail to an enterprise resource planning application to IT as a whole. Under pressure to increase effectiveness and show cost savings, the planning meetings begin. Someone proposes going to a single system; others object, citing the need for continued flexibility and control. Inevitably, a motion is made to just outsource the mess.

Outsourcing solutions exist. For example, one outsourcing company will take desktop support off your hands, providing each user with a standard PC, operating system, productivity applications and ISP connections.

However, if you have a high proportion of knowledge workers who expect to be able to install their own applications on their PCs, these installs might void the outsourcer's support contract. Clearly there are some hard cultural issues to work through before IT gets buy-in for desktop outsourcing.

In another case, two recently merged companies clashed over whether to use Lotus Notes or Microsoft Exchange for e-mail. Several managers floated outsourcing as a "none of the above" option. But it quickly became clear that e-mail outsourcers could not deliver service in the more than 100 countries where this company operates, and that a standards-based outsourced e-mail system would deliver less functionality than Notes or Exchange. Given this firm's stated requirements, outsourcing wasn't a viable option.

It's paradoxical that some of the companies that most want outsourcing are the least prepared for it. If the mess is so bad that you can't manage it, then an ASP or outsourcer probably can't either. To figure out whether outsourcing is for you, and then do it right, consider the following action plan.

First, begin by taking a full inventory of the "mess." Identify classes of users, and agree on the requirements.

Second, figure out what core infrastructure elements — such as dedicated WAN connectivity and enterprisewide directory services — need to be in place before any support organization can manage components like global e-mail and enterprise applications. Start a remediation program internally to build that basic infrastructure first.

Third, evaluate whether ASPs or outsourcers can meet most of your requirements. If you still want to outsource, give one manager ownership of the infrastructure and the outsourcing negotiations. Remember, you can't outsource what you don't understand or control.

Blum is senior vice president and principal consultant with The Burton Group, an IT advisory service. He can be reached at dblum@tbg.com.

Yankee Ingenuity . Howard Anderson

Mobile e-commerce: hype on steroids

I love it when a new technology arrives. It brings forth a bevy of entrepreneurs, visionaries, consultants and con men, all of whom talk of the future as if it were a sure thing. It's just hard to know who is really the visionary and who is the con man. Sometimes the participants themselves don't really know.

Take mobile e-commerce (m-commerce) — the concept of using a mobile device to buy stuff over the Internet. Some market researchers have predicted that there will soon be 180 million people in the U.S. carrying wireless devices capable of accessing the Internet, 60 million of whom will be active consumers of wireless data.

So it holds that all sorts of new services will fall out of the trees and consumers will buy them, right?

Maybe.

Suppose you own one of these wireless devices. You walk into a Best Buy, scan the UPC of, say, a Sony Model 105b DVD player and see it's selling for $10 less one mile down the road at Radio Shack. That's the model that any number of companies are suggesting might be the new killer app — one that combines global positioning with m-commerce and ties it into a neat package. But not so fast, Sherlock.

Think of the networking behind just getting you that data. First of all, the system would have to know where you were. Then it would have to have an arrangement with the consumer electronics retailers to provide information — not only their price, but also whether they have that particular model in stock in the store nearest you. Then the device would have to work inside the store you were in. Still with me?

Next, we need some sort of electronic couponing you can use in the Radio Shack to tell them who you are because the company that provides all this data wants to get 2% of the price you pay for that DVD player.

How else are they going to make money? You and I both know there is no way in hell you're going to pay for a monthly service — you are spoiled and want it for free.

Let me tell you what you are really going to do: You are going to browbeat the store manager at Best Buy to take $10 off the price of the DVD player, or you will walk. But under that scenario, the company that provided you with the data makes nada, zilch, zero.

Now let's expand this shopping data into the broader area of content. Those who own channel — the wireless industry — denigrate content. Those who own content think channel is a commodity. Suppose you were walking down the street and wanted a good Mexican meal. So you use your wireless device to access Zagat's. Is Zagat's going to provide that information to you for free? Or will you pay $8 a month for content to go along with your wireless data subscription? Or is Zagat's going to take 2% of the price of the meal?

What we are looking for is the wireless equivalent of AOL — the trusted third party of the wireless Internet world. One view is that AOL will be the wireless version of AOL — it has 25 million subscribers now who use them for instant messaging and content.

My skepticism about how quickly m-commerce will come about is heightened by knowing that any time we change the infrastructure, we change the balance of power — except it takes a while, sometimes as long as 10 years, before a new technology is used.

Darwinism is alive and well in the Internet wireless world. Now there are many variations that have not seen their first hard winter, and when that comes, many will be carcasses. This is not necessarily a bad thing — most mutants do not improve the breed, and it's necessary to wipe some of them out so that the best survive.

Will wireless data happen? Yes. When? Five years after all the consultants tell you it will. How do I know? Who do you think made up all those rosy forecasts for wireless, ATM, 100Base-T and cable modems? Me. How did I know? I didn't. I guessed.

But you kind of knew that too, didn't you?

Anderson is senior managing director of Yankeetek, a Cambridge, Mass., early-stage venture capital firm. He is also founder of The Yankee Group and the William Porter Distinguished Lecturer at the Massachusetts Institute of Technology. He can be reached at handerson@yankeetek.com.

IT'S A OUT

Hunting for network gear on the Internet can be a bear.

BY GARY KADET

Buying network gear and WAN services over the Internet would seem like a godsend for busy network executives. Especially with new sites popping up all the time offering electronic marketplaces where you can trade anything from network hardware to telecom services to excess bandwidth.

But it turns out that buying routers, leasing T-1 lines or signing up for DSL over the Web isn't as easy as point and click.

First, there's such a hodgepodge of sites that finding the right one for you can be a daunting task.

EBay, Tradeout.com and Dovebid.com are general-purpose auction sites where anything and everything is available, including network gear. Buy.com and Office.com are broadly focused sites that sell computers, peripherals and network hardware.

Band-X and Arbinec are bandwidth brokers. Demandline and Ubundle pool small-business requests into larger bundles to achieve better rates for telecom and other services. Simplexity offers a neutral hub that brings buyers and sellers together for voice, data, wireless, Internet access and Web-hosting services. ITParade.com sells refurbished gear.

"All these sites are pretty much new, and this is a new business model," says Jeanne Schaaf, an analyst at Forrester Research. "They're all doing different things, and the markets are in flux."

If you decide to do market research to determine who the major players are, information is hard to come by because nearly all these companies are privately held.

So how popular are these sites? Schaaf estimates that of the $137 billion spent in 2000 for voice, data, wireless and Web-hosting services, only 1% was spent online. And of the $1.37 billion, 97% was spent directly with the service providers, leaving only 3%,

JUNGLE THERE

or $400 million, that was spent through third-party e-marketplaces.

Another wrinkle is that there are a variety of business models. Some sites are auctions, which means the seller puts an item up for bid and potential buyers keep bidding the price up. Other sites are reverse auctions, in which the buyer puts out a request for proposals and the potential sellers undercut each other. Some sites will help you develop an RFP, while others provide vast databases that let you make product comparisons online. Some sites act as brokers that handle the entire transaction; others, such as Telezoo.com, bring buyers and sellers together for offline deals.

How low can you go?

A fundamental conceptual problem with online buying is that it's based on the premise that getting the best price is the most important factor in your buying decision. But what if price isn't the determining factor? What if you're more concerned about service and support? What about product warranties? What about guaranteed delivery within a certain number of days? What about installation?

Then there's the question of why you would go to a third-party site when you can go directly to the vendor. Elias Shams, co-founder of Telezoo, has an answer. "We have built a database that allows the supplier of telecommunications to just dump their product specifications into it; hardware, circuits, DSL, routers and switches. Our search engine/database takes this information and standardizes it. It creates a uniform table that educates the buyer."

"The reason a buyer might come here, rather than to a main site like Cisco, Lucent or Nortel Networks is lack of time to do a true search," he adds. And he argues that vendor claims can be confusing to customers, but on the Telezoo site "you can make these comparisons with confidence."

Telezoo lets potential customers do comparisons that include pictures, performance details and pricing. Telezoo also offers a white paper search, an automated RFP generator — it even provides access to RFPs submitted by other companies.

Zevi Kremer, chief information officer of ePCX.com and a Telezoo customer, says he had trouble getting the attention of salespeo-

Sample of online IT exchanges

URL	Services	Costs
www.cymerc.com	**ROUTERS,** switches, servers and phone systems sold by auction. End-to-end transaction services. Buyers are responsible for all shipping & handling.	*Free to buyers. Sellers pay a low percentage of the transaction.*
www.itparade.com	**REFURBISHED** IT equipment sold on an RFP/RFQ basis. Site support for building RFPs and RFQs provided. All equpiment under manufacturer warranty.	*Free to buyers. Seller subscription fee. Seller pays a low percentage of the transaction.*
www.telezoo.com	**DATABASE-DRIVEN** exchange for new IT equipment and telecom services. Provides tools for product comparison down to minute specification as well as RFP/RFQ creation. Offers buyer RFPs for reference.	*Free to buyers. Seller subscription fee. Seller pays a low percentage of the transaction.*
www.simplexity.com	**TELECOM** services sold on a best-price comparsion. Site support for building RFPs and RFQs. Provides buyer anonymity.	*Free to buyers. Provider subscription fee.*
www.dovebid.com	**ONLINE** capital asset auctions and valuation services. Provides transaction support services, site tutorial and Webcast Network.	*Schedule of fees for sellers. Buyer premium charge added to each purchase.*
www.tradeout.com	**EXCHANGE** for idle assets and excess inventory on an auction basis. Offers product warranty service through Warranty Now and handles transactions through Escrow. Forbes named the site one of the 25 best of the Web.	*Free to buyers. Seller subscription fee. Seller pays a low percentage of the transaction.*
www.band-X.com	**GLOBAL** commodities exchange for trading international wholesale telecom minutes and bandwidth on a reverse-auction basis.	*Free registration and bidding. Fees payable a percentage of a transaction. basis on the completion*
www.teksell.com	**AUCTION** site for new and used IT equipment. All previously owned equipment undergoes thorough testing and certification. Purchases come with a five-day money-back guarantee.	*Free to buyers. Sellers pay a certification and processing fee with each transaction. The fee is 14% of the sale amount.*

Tester's Choice . Ed Mier

CALLING ALL VoIP — PLEASE DIAL '100'

As a technology and marketplace, voice over IP is exploding. But reining it in from overnight world domination is the lack of a standard mechanism for prioritizing voice-over-IP traffic. Most voice-over-IP vendors acknowledge the problem and would be happy to implement a solution — any solution — if everyone would agree to do the same thing.

So here is my stake in the ground on this issue. It's called the Dial 100 Plan. That's binary 1-0-0, by the way.

My plan assumes that Resource Reservation Protocol is a nonstarter and the state-based Multi-protocol Label Switching is not going to achieve ubiquity any time soon. But there are three other mechanisms that do hold promise: 802.1p/q, the Layer 2 frame tagging that underlies virtual LANs; the type of service (TOS) octet, universal to all Version 4 IP packets; and Differentiated Services (Diff-Serv), an Internet Engineering Task Force draft procedure that restructures the TOS octet (RFC 2474).

The rules are simple. For all three quality-of-service (QoS) mechanisms, I propose their respective priority field be encoded 1-0-0 for any packet containing voice over IP, and that the 1-0-0 value be reserved for voice over IP. In a seven-level priority scheme, 1-0-0 represents a priority level of four out of seven.

Most equipment that outputs voice-over-IP packets today can "write" this value. However, many vendors still leave the fields 0 by default. Only a few write a particular value.

With 802.1p/q, a four-octet field — the tag — is inserted in Ethernet frames after the media access control addresses. The first two octets (the tag protocol ID) need to carry a value "8100," which designates that the packet contains an 802.1p/q tag. The second two octets (the tag control information) start with a three-bit "user priority" field. This is where the 1-0-0 value should be written for voice-over-IP packets. The next bit needs to be 0, and then there's a 12-bit field that carries the virtual LAN (VLAN) identifier, which can be any value from 1 to 4,096. I'm not saying any particular code is required here, but if you want a VLAN for just your voice-over-IP traffic, why not start this value with 1-0-0, too? The remaining nine bits can be whatever you want.

Then there's the TOS octet, which is the second octet — bits 8 through 15 — at the front of the 20-byte IPv4 header. The first three bits, known as the Precedence field, is the key voice-over-IP packet marking in this case. This field should be written, you guessed it, 1-0-0 for all voice-over-IP packets.

Then there's Diff-Serv. For consistency, the first three-bit field of Diff-Serv-encoded packets should likewise be 1-0-0 for voice-over-IP traffic. This is called the Diff-Serv Code Point High. The next three-bit field, the Diff-Serv Code Point Low, should also be encoded 1-0-0 for voice-over-IP traffic. This conveys the meaning that the packet is to be handled for minimal latency, a wholly valid instruction for voice-over-IP packets. The last two-bit field of the TOS octet would normally be 0-0. In other words, a voice-over-IP packet that's Diff-Serv-encoded would contain the octet value 1-0-0 1-0-0 0-0, which is 144 in decimal.

So there you have it: One bit-head's proposal for achieving universal QoS for voice over IP. Let me know what you think.

Mier is founder of Mier Communications in Princeton Junction, N.J. He can be reached at ed@mier.com.

Telezoo.com and Band-X are two Web sites where customers can shop for telecom-related products and services.

ple at major vendors such as Cisco, 3Com and Alcatel. "If you're a small company, they won't even return a call." Kremer placed an RFP on Telezoo for a fixed wireless deployment in developing countries, and the vendors started calling.

However, skeptics such as Thomas Nolle, president of CIMI Corp. in Voorhees, N.J., argue that when it comes to complex network implementations, online product comparisons are worthless.

"Where the process falls down is where you get into the comparison of Product A vs. Product B," Nolle says, "because a 3Com hub and an Intel hub are not necessarily the same product, and the metric that says they're different from each other doesn't indicate that the difference constitutes betterness, so to speak. It's just smoke and mirrors."

Nolle says the successful sites will focus on identifying the key vendors and distributors for a given product and providing some kind of retail exchange to help the customer locate a distributor with a satisfactory price that offers service locally.

Simon Yates, a business-to-business specialist at Forrester Research, agrees: "My basic view is that when it comes to the procurement of IT-related hardware, firms don't really see a lot of value. They can buy all their PCs direct from Dell or make a phone call to a local firm to send over a truckload of Compaqs."

He adds that when it comes to server hardware and communications equipment, customers prefer to go direct because they typically configure the systems for their own requirements. "Having the wrong things arrive on the loading dock can be very expensive," Yates says.

Another obstacle for online sites is the established relationship that customers have with resellers. "Entrenched reseller relationships make it extremely difficult for online markets to gain traction."

Then there are the generic problems associated with any type of online sale. You don't know if the e-marketplace will be out of business tomorrow, leaving your purchase in limbo. There's no easy way to verify the trustworthiness of the sites or of the other parties involved in the transaction, and there's no guarantee the information you're receiving from the e-marketplace on the going rate for products and services is totally accurate. There are always security concerns when you're putting important corporate information onto the Internet.

The bottom line is IT business-to-business sites may make things cheaper and faster, but approach with caution.

When asked why he made online purchases directly from vendor sites, one IT executive who declined to be named says: "In these times, mistakes are more costly than ever before. They carry more weight. It just comes down to a matter of the devil you know vs. the devil you don't."

Kadet is a freelance writer living in Cambridge. He can be reached at kadetg@aol.com.

IT B2B checklist

- Outside verification from services such as Open Ratings.
- Offline financial transactions, or transactions handled by banking services such as Escrow.
- Warranties on equipment.
- Robust technology platform allowing for product specification comparisons.
- RFP/RFQ-building tools.
- Shipping/delivery and installation synchronization.

NetworkWorld REVIEW Storage

Don't put a dime into these jukeboxes

JVC's MC-7100 DVD-RAM jukebox is best, but difficult installation and setup make no real winners.

BY DAVID STROM

At first blush, using a network-attached DVD-RAM jukebox sounds like an easy way to add hard disk storage. Each disc can hold 2.6G bytes of data, and like CD-RWs, they are rewritable media. Jukeboxes can hold hundreds of discs and make the contents available as a standard shared network drive. And because the discs are removable, you can easily create backups and off-site archival copies, or mail them to remote users in need of more data than can easily fit on a single CD-ROM (less than 1M byte).

However, these advantages are still mostly unrealized. The jukeboxes we examined were still immature, so much so that we didn't award a Blue Ribbon Award to the ones we tested. A big issue for the jukebox vendors is that they need to create better software tools to fix the inherent problems of using and managing Windows NT/SCSI devices.

Because prices of magnetic storage continue to plummet, you might wonder whether it's worth it to deal with these units. After all, 30G-byte hard drives cost as little as $100, while DVD-RAM discs cost about $15 each, or about twice as much per gigabyte. However, adding storage incrementally to a jukebox is relatively easy and doesn't require you to take apart your servers to add a new drive. Additionally, DVD-RAM jukebox management software handles the drive letter naming limitations, letting you name drives beyond the letter Z. The software allows an unlimited number of logical disk drives, with various schemes such as a logical drive per disc or spanning several discs. This makes sense for companies that have loads of multimedia presentations on their servers or want to maintain archival copies of streaming audio/video content, or have large collections of graphics files.

We tested three network-ready jukeboxes: the JVC MC-7100, Plasmon's D240-02DR and NSM's Satellite 2000, connecting each of them to a Windows NT network (See "How we did it," page 42). We invited Hewlett-Packard, Asaca, Axis and Pioneer, but they declined to participate. All three jukeboxes cost between $10,000 and $14,000 in a two-DVD drive configuration, and all three were lots of trouble to set up and get into operation. Our favorite was the JVC unit, but it was not good enough to earn a Blue Ribbon Award.

All these products are still immature. A good example is that although NT software is available for managing these devices, very little software is available for Windows 2000 server. All the products required a great bit of tinkering. Our advice? Find a good reseller who is familiar with one of these units and can get things working for you. Otherwise, you'll end up like we did, spending lots of time on the phone and e-mailing technical support personnel to get everything working.

Pieces of the puzzle

There are three pieces to setting up your own DVD-RAM networked jukebox. The first is the jukebox library unit itself. It contains one or more SCSI drives that play and record the DVDs, similar to the SCSI DVD players available for desktop computers. The library also houses shelves that hold 50, 100 or more DVD discs and a robotic arm that moves the discs from the shelves to the players. Finally, every jukebox contains a "mail slot," a tray that opens to the outside and is used to load a single piece of media and remove media from the inside of the jukebox.

The Point Jukebox Manager (see www.nwfusion.com, DocFinder: 2421 for a full report) sets up shared directories, can import and format software, and shows where each of your discs is loaded inside your jukeboxes.

The jukeboxes ranged in size from the NSM Satellite 2000 (about the size of a large PC-based server cabinet) to the Plasmon D240-02DR, about the size of a 5-cubic-foot refrigerator. The size of the units was more in line with their robotics and cabinet design, not their library capacity. Because you can only use one disc per drive, the more drives you install inside a jukebox the higher the initial purchase price, but the more capable the unit becomes for network usage. This is because multiple media can be written and read concurrently with multiple drives. We tested dual-drive models but would recommend you install the maximum number of drives if you intend to use these jukeboxes in any serious-sized network. The JVC can hold four drives, the NSM five and the Plasmon up to six drives. This capacity is different from the actual number of discs that can be held in each unit — the JVC can hold up to 100 discs, the NSM 135 and the Plasmon 240.

Some jukeboxes can contain players for other media, including CD-ROM and CD-R drives. The trick with these products is being able to make use of these multiple CD and DVD formats. This means they can share files stored on these CD formats, as well as burn their own CDs from your data. All DVD-RAM drives have the ability to read data from CD-R or CD-RW formats, with one caveat being the ability of the jukebox management software to enable this feature, and that is the second puzzle piece.

Software is where you'll spend most of your time because of NT, SCSI and DVD idiosyncrasies. Jukebox management software lets the data stored on DVDs and CDs be available to network users. Why is this software necessary? First off, because no jukebox comes bundled with its own management software yet. Second, the trouble with Windows NT is that it can't write to DVDs directly, so it needs to be tricked into using this format as a legitimate network shared drive. The software caches information from the library to a magnetic disk for faster access and also is used to format the DVD optical discs. Finally, the software operates the robotics of the jukebox, taking inventory of the discs in the library and moving media around as it is needed to serve up files on your network.

Technically, a DVD-RAM drive can read files that are stored on CD-ROM, CD-R, CD-RW and various DVD formats, but you can't write to the recordable CDs — you need a CD-R drive for that. However, we found that getting this to work wasn't easy. Some software couldn't read anything but DVD formats, while others could read the other formats but needed some

Alphabet soup — A guide to the various disc formats

For more information, go to www.cdpage.com, a site created by three freelance writers who have lots of useful information about DVDs, CDs and audio/video applications.

DVD-R: Write-once, 3.9G or 4.7G byte per side, depending on the type of blank media used.

DVD-RAM: 2.6G byte per side with single and double-sided disks, rewritable media.

DVD-RW: 3G byte to 4.7G byte per side, double sided, rewritable media.

CD-R: 650M byte or 700M byte, single sided, write once, can be read in most CD-ROM drives.

CD-RW: 650M byte, single-sided, rewritable media, can't be read in CD-ROM drives.

How we did it

We connected each jukebox to a Dell Dimension 200-MHz server with 64M bytes of RAM and a 2G-byte SCSI magnetic hard disk, using an Adaptec 2940 PCI SCSI adapter. The Dell ran Windows NT Server Version 4, with Service Pack 6. The server was connected to a 10M bit/sec Ethernet network, and we copied files to the jukebox media from four Windows clients running 98, NT and Win 2000. We ran Jukebox Manager Software from Point Software for each jukebox in turn. We also compared this setup with the Plasmon/Allstor NetReady Unix-based server, connected to the Plasmon jukebox. We examined the way each jukebox loaded and unloaded media, how useful each front panel controls were and what information was reported by the jukebox to the management software. We also examined the amount of time each server took to copy files from a number of workstations, along with the perceived time to log on to each box and bring up a directory listing in Windows Explorer. In addition, we looked at how each performed playing multiple 10M- to 30M-byte MPEG movies across the network.

adjustments. We tried several software products on the three jukeboxes reviewed for this article (www.nwfusion.com, DocFinder: 2421) but ultimately chose Point Jukebox Manager from Point Software and Systems.

The third piece of the puzzle is how to connect the jukebox to the network. There are two choices here. First is to use a specialized server appliance, such as the one we tested from Plasmon called NetReady (www.nwfusion.com, DocFinder: 2421).

The second choice is to connect the SCSI cables from the jukebox to a standard NT server, which supplies the network connection as well, and install the management software on that server. This takes more time to set up and will require you to have some knowledge of SCSI products and operations. Some jukeboxes can also use serial, rather than SCSI, connections, which reduces their overall performance but may be easier to set up. The Plasmon and JVC jukeboxes came with just SCSI connectors, while the NSM Satellite came with two connectors: a SCSI connector for the drives and a serial connection for the robotics controller.

Ease of use/setup

Each jukebox was difficult to set up, requiring at least one technical support call and sometimes more. Given the many puzzle pieces, we often had a hard time figuring out whether the problem was with our NT installation, the jukebox management software application, the SCSI configuration or the jukebox itself. Usually, the problem was with NT, but often the problem was poor documentation from the jukebox manufacturer. We recommend that if you intend to assemble your own system, install a clean copy of NT from scratch. One of the problems is that NT is very fussy about SCSI drivers and can get easily confused if multiple SCSI drivers are installed or if multiple applications claim the SCSI bus. Our technical support sessions often began with a technician telling us to open the Registry editor and examine various keys to make sure that the SCSI configuration was correct. That isn't a good state of affairs for these products and is indicative of the poor level of tools available.

Performance

Reading and writing files to a DVD-RAM disc is slower than a magnetic disk: We found it at best 20% slower, and often slower depending on what information was cached by the jukebox manager. The larger the cache on a magnetic disk and the greater the number of DVD drives on each unit, the better your own performance will be. The JVC was the best performer of the three. It was able to play MPEG movie files from multiple DVD discs for multiple users without any skips or audio dropouts.

Manageability and reliability

Another problem with jukeboxes is keeping track of your media and making sure that 2G bytes of files on one DVD disc doesn't disappear into the innards unaccounted for. That actually happened with each unit we tested but mainly because we inserted media with an incompatible format that the management software couldn't read. The NSM unit was the least reliable of the three, at one point requiring a cold reboot of both jukebox and NT server before it could continue to operate.

Documentation

All three units had horrible documentation. Part of the problem is that these are big units that come with a variety of protective packaging, and figuring out what you can remove and what you shouldn't is buried deep inside the manuals. A bigger problem was the range of operating environments where the jukeboxes will be used: NT, Unix, different SCSI adapters and different jukebox management software programs. The manuals did a poor job of addressing the specifics of setting up these devices under the different operating system environments. Of the three, JVC's was the best and NSM's the poorest.

Conclusion

Getting a network-attached DVD jukebox up and running isn't easy. Other than the NetReady appliance, there isn't any real way to attach these jukeboxes other than to a SCSI connector on a standard NT Server. This makes for some difficult times in terms of getting the right match among software, drivers and servers.

Of the three, the JVC was the best performer and had the most solidly made robotics, making it the most appropriate unit for network-attached storage. The NSM had trouble keeping up with more than a few users. The Plasmon unit had the highest capacity for discs and drives but lagged behind the JVC unit in terms of delivering data to multiple concurrent users.

Sharing DVD-RAM discs on the network is still a black art. Getting the various pieces put together will require patience, expertise in a variety of areas and lots of technical support calls. We recommend waiting until these products mature or until better software jukebox management tools are available before you invest in one of these units.

Strom was the founding editor in chief of Network Computing *magazine and published his own essays called "Web Informant." He can be reached at david@strom.com.*

www.nwfusion.com

JUKEBOX FEVER

How we tested the jukeboxes.

The software side of DVD jukeboxes.

A look at Plasmon's AllStor NetReady server appliance.

DocFinder 2421 — find it online

NetResults

MC-7100

RATING: 2.4 **COMPANY:** JVC (714) 816-6500 www.jvc.net/ds2 **COST:** $11,995 **PROS:** Best robotics and most reliable unit of those tested **CONS:** Front panel display very terse.

D240-02DR

RATING: 2.2 **COMPANY:** Plasmon (612) 946-4100 www.plasmon.com **COST:** $13,995 **PROS:** Easiest to bulk load/unload discs **CONS:** Robotics poorest of units tested.

Satellite 2000

RATING: 1.3 **COMPANY:** NSM (631) 273-4600 www.nsmstorage.com **COST:** $10,395 (as tested) **PROS:** Smallest footprint, best front panel controls **CONS:** Slowest transfer speeds of units tested, difficult to bulk load/unload discs.

SCORECARD

	Ease of use/setup	Performance	Manageability and reliability	Documentation	Total
	30%	30%	25%	15%	
JVC	2	2.5	2.5	2.5	2.4
Plasmon	2	2.5	2	2	2.2
NSM	2	1	1	1	1.3

Scoring key: 5: Exceptional showing in this category. Defines the standard of excellence; **4:** Very good showing. Although there may be room for improvement, this product was much better than average; **3:** Average showing in this category. Product was neither especially good nor exceptionally bad; **2:** Below average. Lacked some features or lower performance than other products, or than was expected; **1:** Considerably subpar, or lacking features being reviewed.

New scoring for reviews

As of **Jan. 8,** *Network World* has switched its scoring scale. We will now score products on a scale of 1 to 5, rather than 1 to 10. We feel that scoring on a 1 to 5 range would be more easily understood than previous methods. As it relates to school grades, the new scoring would establish **1=D, 2=C, 3=B, 4=A**. A score of **5** would be the exceptional score — a scholastic equivalent would be scoring an A in an honors class.

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NetworkWorld REVIEW E-mail server

Niagara: a rough ride but worth a look

BY MIKE AVERY, NETWORK WORLD GLOBAL TEST ALLIANCE

If you want to use your existing NetWare system as an e-mail server, you have four choices: Novell's GroupWise or its Internet Messaging System (NIMS), the Mercury e-mail gateway, or the new kid on the block, the Niagara e-mail server from the Hungarian company OfficeNet.

GroupWise, of course, is a heavyweight office automation suite that starts at $140 per seat. At about $20 per seat, NIMS offers standards-based messaging, Web-based administration and list server features. The Mercury gateway we're currently using can act as a mail server and list server, but it is limited to Post Office Protocol 3 (POP3) and Simple Mail Transfer Protocol e-mail access. However, it's free, with the option of buying support manuals from David Harris, the program's author.

Niagara is the fourth option and the newest entrant. In addition to providing SMTP and POP3 e-mail connectivity, it offers list services and aggressive antispam functions. Niagara is a Novell Directory Services-based program, storing all mail and list information in NDS. The price starts at around $10 per seat.

Niagara was an easy-to-use and stable e-mail server (See "How We Did It," www.nwfusion.com, DocFinder: 2427). Unlike Mercury, it lets you send e-mail without requiring another e-mail server to assist it. It has a good degree of NDS integration and offers excellent antispam functions. However, its list server functions are lacking. This is the key reason we won't be going over the falls with Niagara.

Stopping spam

While the Mercury product needs to use a relay host to send e-mail to the Internet, Niagara can use a relay host or send the mail directly. Sending the mail directly means one less computer to purchase, install and maintain. Even more attractive are Niagara's spam filtering options. Niagara can block mail that does not come from valid addresses, as well as check with the Mail Abuse Prevention Systems' Realtime Blackhole List and Open Relay Behavior-modification System services to block mail from known or suspected spam sites. During our tests, we only received one piece of spam. The spam control options let us enable or disable each spam test and decide what actions to take. We could delete the mail, bounce it back to the sender or send it to a postmaster for examination.

As an e-mail server, Niagara was a delight. It worked with POP3 and SMTP, and also worked with the Pegasus Mail client on a NetWare LAN the same way Mercury does. However, whereas Mercury lets the same user connect via local IPX or POP3 to the server, Niagara only allows one option or the other. Changing this required reconfiguration in NWAdmin, which could be a problem for travelling users.

We were very pleased with Niagara's full-screen display, which showed what it was doing and the resources it was using. The only serious weakness is the lack of support for IMAP and Web access. If you need those features, NIMS may be a better choice.

Managing the list server

Our next task was to move the mailing lists from our Mercury server to the Niagara server. Mercury uses complex files to manage mailing lists, but Niagara stores all mailing list information in NDS. It took just a few minutes to create the mailing lists in NWAdmin. There wasn't a utility to help us import our mailing lists from Mercury. We could have typed in the information for more than 5,000 subscribers in six lists, but that seemed like an exercise in aggravation. It was easy to write a program that read the Mercury mailing list files and created a file with the appropriate subscription commands to mail to the list server.

After the conversion, Niagara could send and receive more than 6,000 messages, and all seemed well. However, as we looked at the controls and functions offered by Niagara over mailing lists, we felt that the mailing list functions are a work in progress. There was no option to have multiple moderators, which is useful for larger lists. There wasn't a convenient way to have a list owned or moderated by someone who uses a different site for e-mail. While the manual showed an example of a new subscriber welcome message, we couldn't find a way to actually send new subscribers a customized welcome message, or to send a goodbye note to people who unsubscribed.

A more serious matter is how bounces are handled. Bounces are returned messages and a recurring nightmare for mailing list moderators. Bounces occur for many reasons, and moderators need to remove the subscribers from the lists to keep the mail server load manageable. The worst problem a moderator has to deal with is bounced messages from a brain-dead mail server that doesn't return the address that bounced. In this case, the moderator needs to search the mailing list in hopes that the domain of the returned mail will allow a good guess as to whose mail bounced. With the flat text files used by Mercury and Unix-based products, it's easy to use a text editor's find function and locate the domain in question. However, the NDS database, which Niagara uses, is not as easy to search. Searching by name is possible, but not by domain. We hope that OfficeNet will add search tools to make this task easier.

Finally, we noticed Niagara ignored commands we sent to the list server, and the normally busy lists had no traffic in them. We sent a test message to one of the lists and never saw it again. We received some angry phone calls from users who wanted their mailing lists alive. After stopping and restarting Niagara, the lists were still dead, even though other mail continued to flow. We stopped Niagara and started Mercury, and the list traffic began flowing, including the "vanished" messages. We talked to OfficeNet support staff, and they told us they were looking into the matter. As of press time, we hadn't heard back from OfficeNet support.

Installation and support

Installing Niagara was very easy, and it also installed the snap-ins that let Novell's NWAdmin control Niagara. Configuring and loading the software was also easy. The manual clearly covered the installation process. Unlike some programs that use NWAdmin, Niagara has extensive and excellent help available from within NWAdmin.

Some people are reluctant to purchase from a small company, much less a small company in another country. In the week we worked with Niagara, OfficeNet support staff answered most of our questions quickly. Their English was excellent. However, there is a response delay due to the six- to nine-hour time difference, depending on where you are in the U.S., which can cause delays in getting help.

There's a lot to like with Niagara. The antispam features were outstanding, something Mercury doesn't have. For network managers who only need e-mail services, we recommend the product. However, if you are looking for a list server, as well as more complex features, you might want to look at Mercury or NIMS, or wait for an updated version of Niagara.

Avery (mavery@mail.otherwhen.com) is the founder of Gunnison Territory Network Consultants, a small firm specializing in network design, management, and administration. He is also a member of the Network World Global Test Alliance, a cooperative of the premier reviewers in the network industry, each bringing to bear years of practical experience on every review. For more Test Alliance information, including what it takes to become a member, go to www.nwfusion.com/alliance.

NetResults

Niagara 2.5

RATING: 3.5 **COMPANY:** OfficeNet, (36) 30-951-2479, www.officenet.hu/niagara. **COST:** $265 for a 25-user license, $525 for a 100-user license, $1,895 for a 500-user license. **PROS:** Excellent, stable mail services, economical e-mail server with good NDS integration. **CONS:** List services are immature, lacking features and stability.

SCORECARD

	E-mail server features 25%	List server features 25%	Management/ administration 25%	Installation 15%	Service/ documentation 10%	Total score
Niagara	5	2	4	3	3	3.5

Scoring key: **5:** Exceptional showing in this category. Defines the standard of excellence. **4:** Very good showing. Although there may be room for improvement, this product was much better than average. **3:** Average showing in this category. Product was neither especially good nor exceptionally bad. **2:** Below average. Lacked some features or lower performance than other products, or than was expected. **1:** Considerably subpar, or lacking features being reviewed.

Management Strategies

Career Development, Project Management, Business Justification

Plugging the skills gaps

Bank One finds that skills assessment and training generate impressive returns.

BY TOM DUFFY

Two years ago, Bank One's Investment Management Group was at a crossroads. The $2 billion organization was moving quickly from client/server systems to bandwidth-heavy Internet and intranet applications. But the newly consolidated 180-person IT department lacked many of the specific skills needed to lead the way.

"We had no skill in analyzing the bandwidth of applications," says Jim Hendrickson, senior managing director of customer delivery for IMG, the investment arm of Bank One in Columbus, Ohio. "We were going to be building Internet applications for customer access without understanding from a network and availability perspective what would happen when people logged on."

Hendrickson also worried about employee retention. The IT department's turnover rate was about 8% in 1999. But he expected that local job market pressure might easily double that rate during 2000. A greater emphasis on training might encourage people to stay.

The IT group had plenty of money for training — about $750,000 per year. But the question was how to apply it effectively. The first challenge, as Hendrickson saw it, was not to put bodies in training seats, either off-site or online. It was to create a culture in which people wanted to expand their skills.

IMG started by holding brown bag lunches featuring a systems engineer who had just returned from an off-site training session. The engineer would share what he learned on, say, network address translation, as it related to the firm, while everyone munched on sandwiches.

"The idea was to create an environment where, because their peers were learning, other people would start saying to themselves, 'Well, I better learn some of this stuff too,'" Hendrickson says.

The firm planned to use online courseware wherever possible to reduce training costs. But the challenge was to identify skills individuals lacked and plug employees into relevant training sessions in a timely way. To do this, IMG turned to Intraware of Orinda, Calif., an electronic marketplace for Web-based software and services, including training.

Skills assessment can be a tricky business, Hendrickson says. Employees can often become defensive when managers suggest that they need to update their skills. But he says working with Intraware, which bundles an assessment package designed by SkillScape Management Services of British Columbia into its offerings, took some of the difficulty out of the equation.

Instead of dealing with a manager, systems engineers logged on to Intraware and compared their abilities in a host of predefined skills with an objective list for their specific position. For each skill, SkillScape told users whether they needed to be a guru, an expert or simply proficient, and then listed particular techniques the users needed to execute for each ranking.

If a person needed to be an expert in routing but only had some knowledge of it, SkillScape would identify a course to fill the gap. Later, the employees would chart a course of action with a coach brought in from outside the company or a peer from within.

However, identifying the skills gaps has proven to be a bit easier than getting people the online training. Hendrickson says in some cases employees had trouble accessing the material because of firewall and security issues that the company declined to enumerate. IMG temporarily got around the problem by putting the course material on its own server. In other cases, employees took the courses at home.

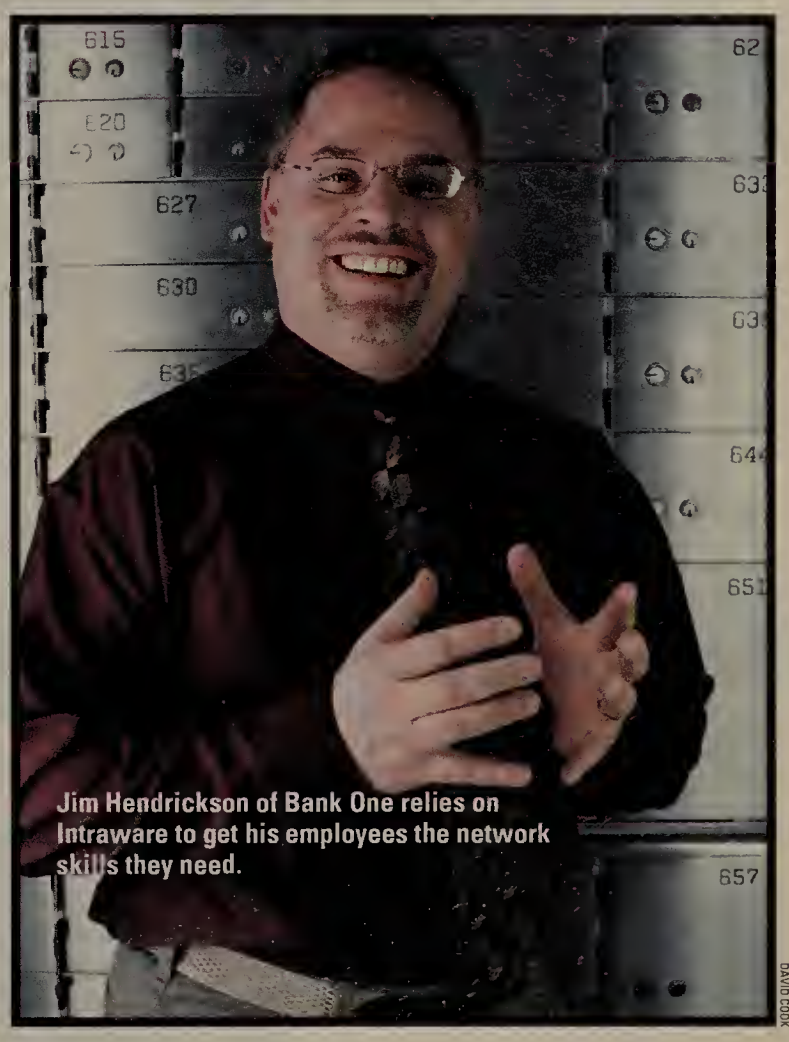
"That cost us between 30 and 60 days as we worked through the problems," Hendrickson says.

David Zorich, an IT project manager at IMG who oversaw the implementation of Intraware, says some of that delay has been compensated for by the convenience of providing online training, as opposed to sending people off-site to seminars and courses.

"Often if I'm working on a hot project, I can't go away for three days of training," Zorich says. "This way, if I have an hour or a couple of hours I can do it."

Zorich tried his own skills assessment, at least partially, in August. He was so busy getting co-workers connected to Intraware that he only had time to assess about half of his skills.

The product indicated that he had a weakness in e-commerce fundamentals, and recommended that he take three courses to close the gap. He took one course online, downloaded another to take home and has yet to take the third one.



Jim Hendrickson of Bank One relies on Intraware to get his employees the network skills they need.

DAVID COOK

Zorich was happy with his experience but says that Intraware's interface is a bit complicated and that it can sometimes be difficult to navigate around the site. "They have the concept down in terms of how it can be used as a career development tool," he says. "But the user interface needs to be improved. It needs to be less mouse-clicky and more intuitive."

Though only half of the technology group has been assessed, the combination of Intraware and online courseware already has provided significant savings. The turnover rate for targeted employees held at 10%, Hendrickson says, which translates into a savings of about $350,000 in recruitment costs. Online courseware, meanwhile, has saved another $300,000 or so, compared with taking the courses at a school, while the cost of the Intraware applications was just $90,000.

Down the road, Hendrickson wants to use Intraware as a career development tool for people in other Bank One divisions who might be interested in moving to IT.

"That way if people in customer services want to become systems engineers, we could give them the skills profile so they would know what they need to do to get there," Hendrickson says.

Duffy is a freelance writer in Haydenville, Mass. He can be reached at tomduffy62@aol.com.

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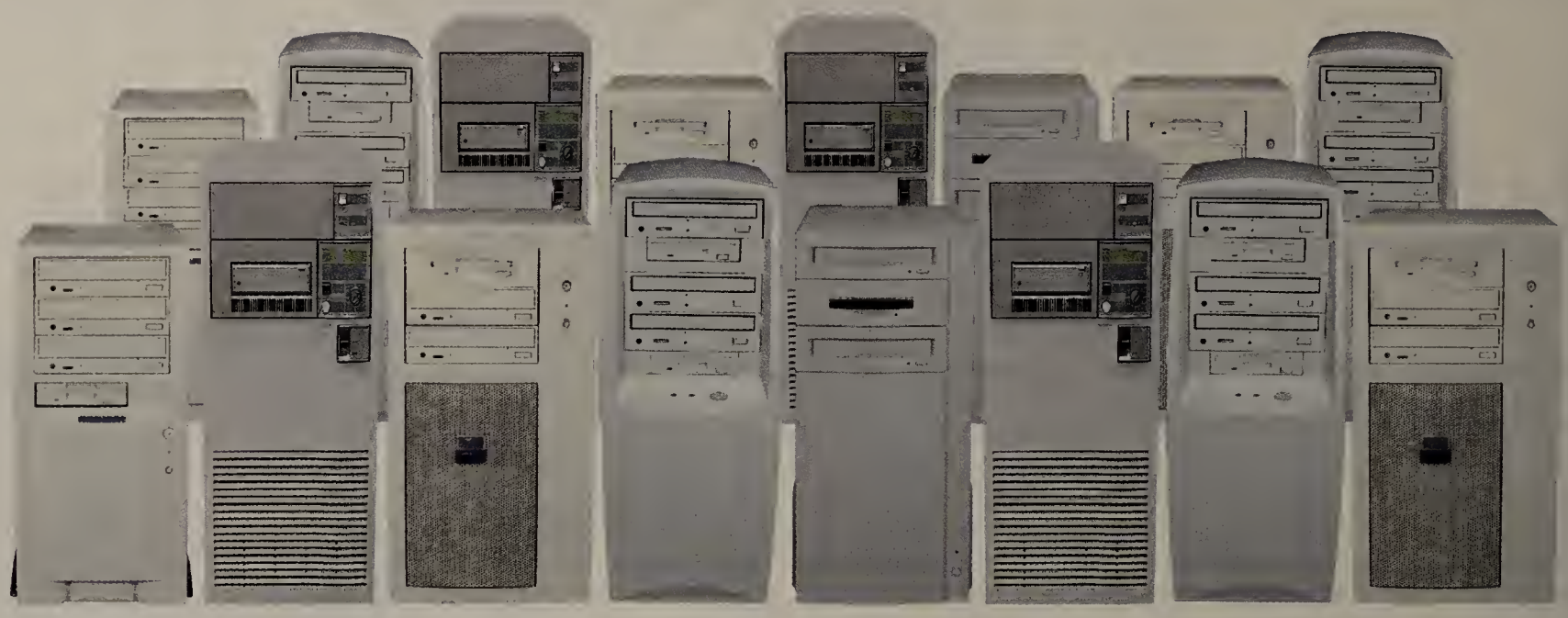

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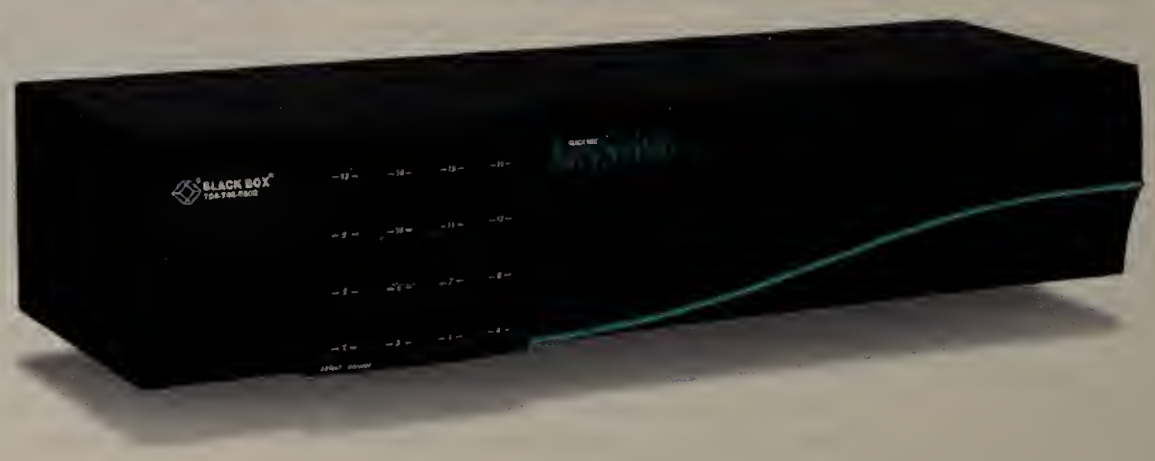

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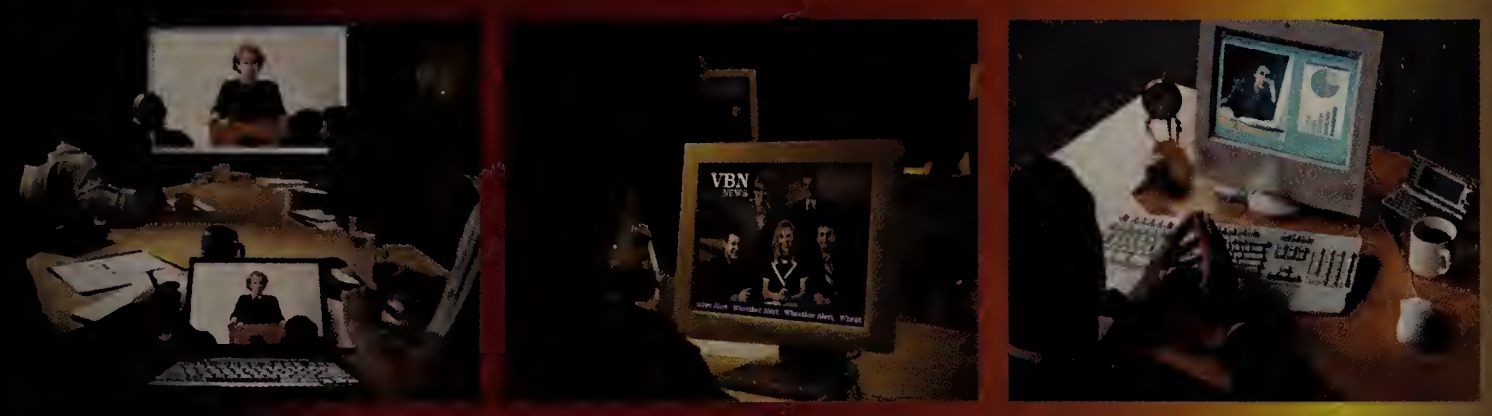

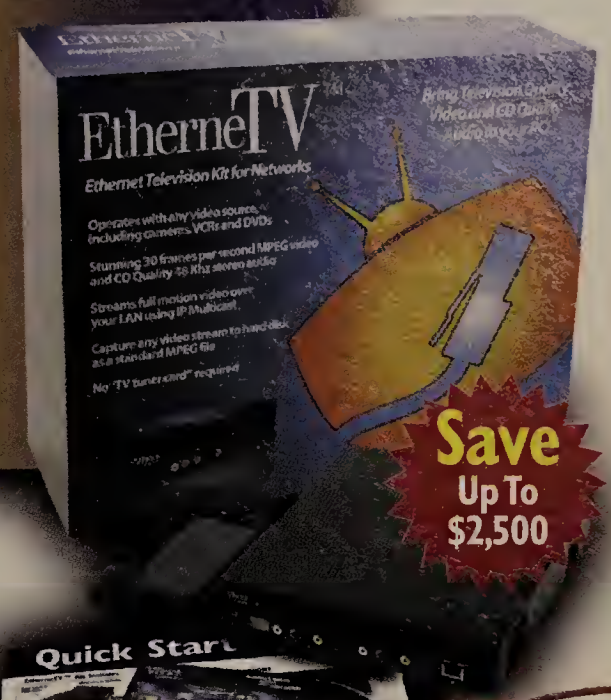

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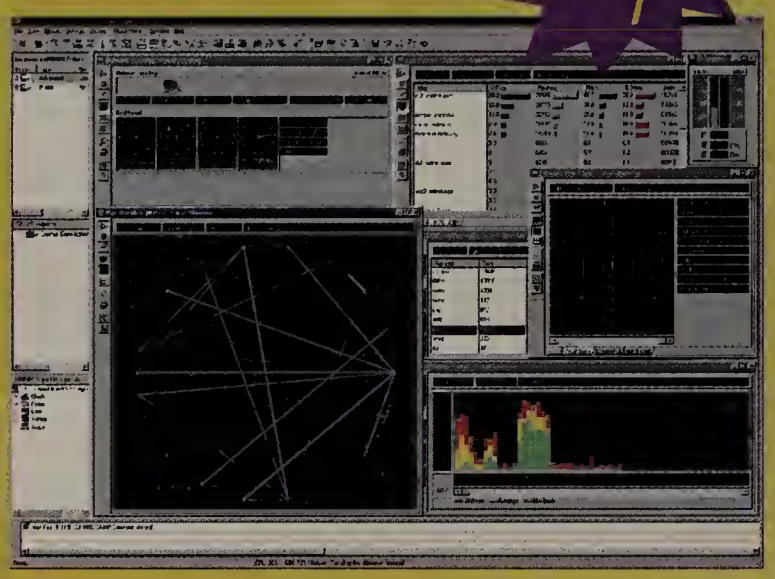

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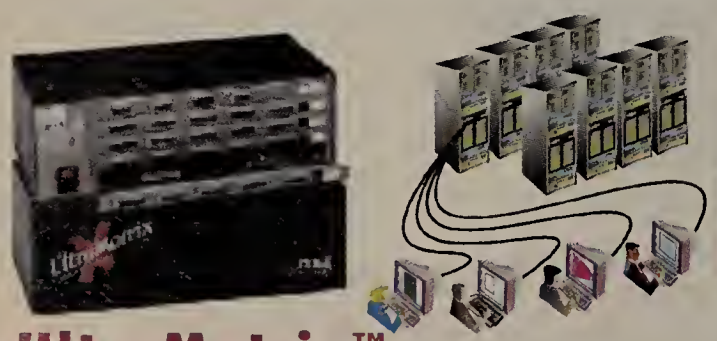

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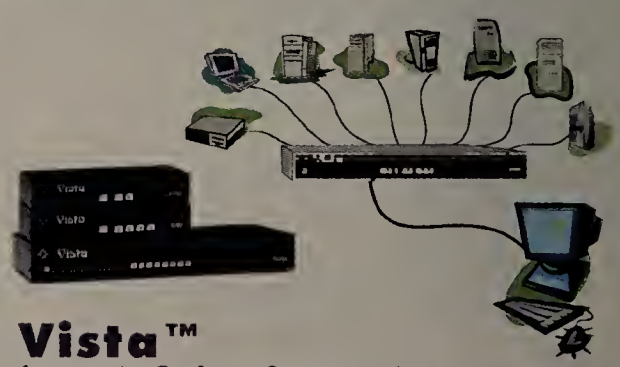

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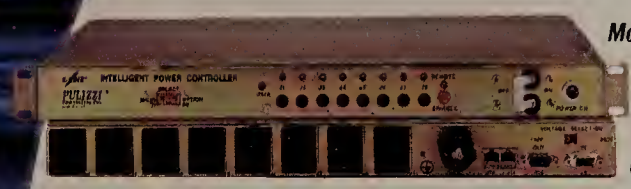

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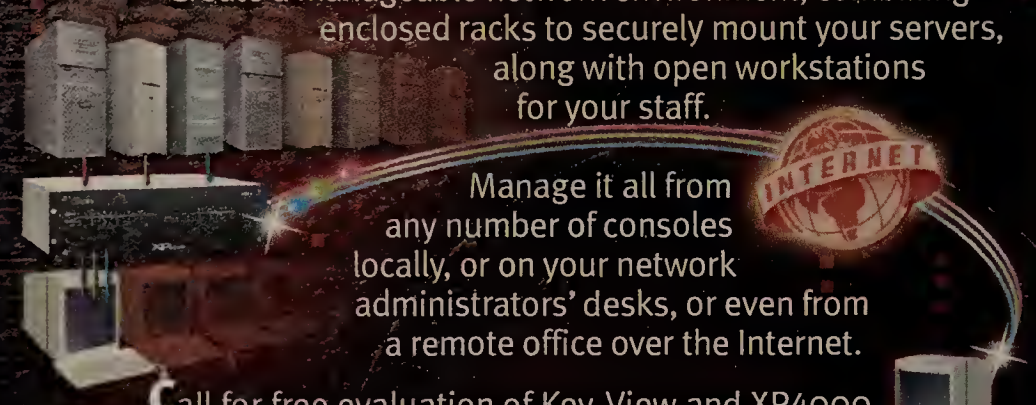

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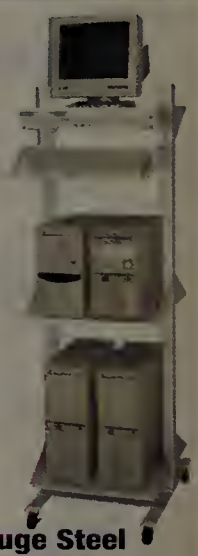

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Systems Analyst,Trading Systems-Investment Management firm seeks System Analyst with experience in graphics/GUI programming and Unix Systems Administration to provide software and hardware support for computer system utilized by trading room. Duties include development,enhancement, maintenance & support of tradinq room customized software & developing software interfaces linking the trade desk with research & accounting groups. Required:Master's in Computer Science; 6 months experience or 6 months as Programmer Analyst. Salary according to experience. Send resume to RTC, 600 Route25A, East Setauket, NY 11733, ATTN: HFHC4

Software Engineers (NJ), Analyze, plan, design and code SunGard Trading Systems. Solid knowledge in C/C++, Java/Corba, Shell, Tcp/Ip, Sybase, Unix/NT, familiar with Jbuilder/Cvs/CC. MS of computer science plus 2 year exper. Good pay. Send resumes to HR, SunGard Trading Systems - Brass, 1008 Virgil Ave. Ridgefield, NJ 07657.

Systems Analyst. Analyzes user requirements, procedures, and problems to automate processing or to improve existing computer systems. Must be able to travel and work at client site for many month at a time. Bachelor's degree in computer science, engineering, or math-related and 2 years experience required. Required 2 years experience included in those 2 years experience in Visual Basic, C, , SOL Server, ORACLE, JAVA, HTML. $62,920/year. Oualified applicants submit resumes to Human Resources Development Dept., Capricorn Systems Inc., 3569 Habersham at Northlake, Building K, Tucker GA 30084.

Systems Analysts/Software Engineers wanted by Software application, desgn, dvlpt, Consulting co in New York, NY. Must have Bach. Degree in Comp Sci, Comp Eng, Comp Info. Systems or Math & 2 yrs s/ware exp. Respond to HR Dept, Financial Technologies Inc, 22 Cortland St, 22nd Fl, New York, NY 10007.

AutoCAD Specialist: Prepares 3-D building and equipment models for architectural and engineering projects. Designs working plans and detailed drawings using CAD equipment and software. Provides engineering design and installation detail. Bach in Comp. Sci., or equiv. and 1 yr exp. Respond to: HR Dept, IPS-Integrated Project Services, 2001 Joshua Rd., Lafayette Hill, PA 19444.

Programmer/Analyst: Web application development using ASP, JAVA, HTML, COMs, Visual Basic, C/C++, Visual InterDev and SQL Server. Master's in Comp Sci. or Comp Engg. (or equiv.) & 2 yr. exp. in job offered. Send resume: HR Dept., Enablx, Inc., 675 Route 10 East, Randolph, NJ 07869.

Fast Growing Consulting firm located in NJ and Atlanta, GA needs Software Engg. w/MS & 1yr. exp. or Progg. Analyst w/BS & 2 yrs. exp. in the fol. Pro*C, PL/SOL, Designer & Unix Shell Scripts, SOL Server, Oracle, Sun Solaris, Dev. 2000, Informix, RDBMS, HP 9000, Visual Basic, C, C++, Cobol, Win NT, Sybase, Java, HTML, PowerBuilder, IBM Mainframe, CISCO. Excellent Benefits. Apply w/resume to: Attn: Ceenali, c/o Transworld Information Systems, 33 Wood Avenue, Iselin, NJ 08830.

Software Engineers-multiple positions, wanted by Custom Software Co. in Deerfield Beach, FL. Must have B.S. in Engg. & 7 yrs. comp exp & expert knowledge in SOL Server, Oracle, MTS, VB, VC++, ERWIN & Visual Modeler. Respond to: HR Dept., Computer Solutions & Software International, Inc., 856 S. Military Trail, Deerfield Beach, FL 33442.

Several positions available, including Software Engineers, BIOS Engineers, and ASIC Design Engineers in a variety of locations. Requirements and salary vary per position. Send resume to: Nanda Chheda, A.M.I., 6145F Northbelt Parkway, Norcross, Georgia 30071.

Network Engineer sought by Securities Trading Firm in Jersey City, NJ. Must have BS in Computer Science/Computer Engineering and 2 years experience in systems admin./data analysis or directly related field. Respond to: Human Resources Department, Knight Trading Group, 525 Washington Boulevard, Jersey City, NJ 07310.

Technical Sales Manager sought by IT Co. in Edison, NJ. Must have BS Degree in Comp Sci or Comp Eng & 5 yrs experience in marketing technology services, management of technology projects and supervision of software engineers in financial sector. Must have knowledge of ISO 900 and SEI CMM, development of e-commerce strategies and internet development. Respond to: HR Dept, Valuemomentum Inc., 11 Taylor Road, Edison, NJ 08817.

Project Manager sought by Computer Consulting Co. in Manh, NY to org and manage on-line software devlpmt projects. Conf w/client; detrmn system design, specs & budget; org & manage projct teams. Respond to: HR Dept., Vitech Systems Group, 404 Park Ave South, 5th Fl, NY, NY 10016.

Software Engineers needed to analyze dsgn, dvlp, test, debug s/ware products for websites & e-commerce projects using Oracle, Java, HTML, XML. Apply to R. Gorga, Bluestone Consulting, 1000 Briggs Rd, Mt. Laurel, NJ 08054.

Unix Systems Administrators needed to install/configure/tune/troubleshoot cluster systms & dsgn/implmt LAN/WANs. Apply to J. Kealy, U1.Net, 4 Greentree #205, Lincoln Dr, Rte 73, Marlton, NJ 08053.

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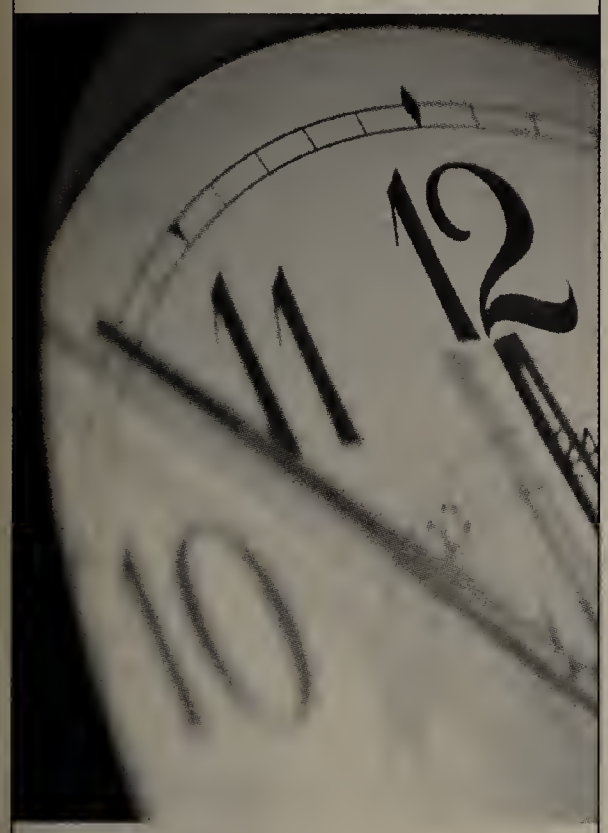

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Software Engineer needed to analyze user requirements, procedures & problems to automate processing & improve existing computer system using Progress 4GL Tools & GUI for sales & service company of precision measuring tools & instruments, located in Aurora, IL; 37.5 hrs/wk. Must have bach's deg in Computer Science, Electrical Engineering or Mathematics & 1 yr. in job. Contact T Krull, Human Resources Manager, Mitutoyo America Corp., 965 Corporate Blvd., Aurora, IL 60504.

Systems Engineers wanted by information technology firm. Sr. engineer must have M.S. and 1 yr. exp in managing development of business/Web applications/ planning data processing requirements or programming/ application development, database structures, systems analysis, tech. support, VB/HTML or Java Script. Respond to Cecil Kearney, CIO, TradeWind EC, 10300 North Central Expressway, Suite 130, Dallas, TX 75231.

Consultants/Engineers/ Administrators needed. Butte, Montana company has several positions available for qualified candidates possessing MS/BS or equivalent and relevant work experience. Work with some of the following: PL/SOL, SOL, UNIX, Pro C and Designer 2000. Fax resume to Computer Consultancy Corporation (406) 933-8970 attn: Tom Highley or email to csi@montana.com.

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Imetris (formerly Onyx) and Three-D are two sister companies specialized in IT and engineering consulting. We have at least 40 openings for Programmer/System Analysts, Software/Project Engineers, DBA (plus two market research analysts). Candidates with any of the following skills most ideal but not necessary (we can train): Visual Basic, C/++, SAP, PeopleSoft, Unix, SOL/SOL Server, COBOL, Oracle or Sybase, Powerbuilder, CAD/CAE, FEA/FEM, etc. Require MS/BS. Attractive salary with excellent benefits. Fax resume: 248-471-2574 or visit our web: www.imetris.com

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Client/Server Programmer: Programs, tests, debugs, designs and modifies applications in various client/server environments. Codes various modules for new systems installed in a networked environment. Uses C++, Visual Basic, Java, or other Object-Oriented Languages to insure modifications in various networked client/server environments. Requires Master's Degree in Computer Science or Management Information Systems. Education to include completion of one course in Visual Basic, C++, Java or other Object-Oriented Languages, and two network programming courses. Hours: 8:00a.m.-4:30p.m. 40 hours per week at $52,250.00 per year salary. Applicants must show proof of legal authority to work in the U.S. Job Location: Lisle, Illinois. Please send two copies of resume and cover letter to: Illinois Department of Employment Security, 401 S. State Street-7 North, Chicago, IL 60605, Attention: Arlene Thrower, Reference #V-IL 24421-T, AN EMPLOYER PAID AD. NO CALLS.

Client/Server Programmer: Programs, tests, debugs, designs and modifies applications in various client/server environments. Code various modules for new systems installed in a networked environment. Uses C++, Visual Basic, Java, or other Object-Oriented Languages to insure modifications in various networked client/server environments. Requires Master's Degree in Computer Science or Management Information Systems. Education to include completion of one course in Visual Basic, C++, Java or other Object-Oriented Languages, and two network programming courses. Hours: 8:00 a.m.-4:30 p.m. 40 hours per week at $52,250.00 per year salary. Applicants must show proof of legal authority to work in the U.S. Job Location: Lisle, Illinois. Please send two copies of resume and cover letter to: Illinois Department of Employment Security, 401 S. State Street-7 North, Chicago, IL 60605, Attention: Joanne Breaux, Reference #V-IL 24317-N, AN EMPLOYER PAID AD. NO CALLS.

Software Engineer needed for sales & service company of precision measuring tools & instruments, located in Aurora, IL, to analyze user requirements, procedures & problems to automate processing & improve existing computer system & development of COM (Component Object Model) based architecture for the MeasureLink site of applications & restructure of existing design to COM with consideration of portability to COM+, documentation of design & architecture & the programming & testing code in Visual C++ environment; 37.5 hrs/wk. Must have bach's deg in Computer Science & 2 yrs in job. Contact T Krull, Human Resources Manager, Mitutoyo America Corp., 965 Corporate Blvd., Aurora, IL 60504.

Senior Technical Consultant (Champaign, IL) - Responsible for independently planning, developing, testing & documenting non-routine complex computer programs including: Ingres ABF4GL using C on a UNIX platform & TRIS+3 modules. Analyze, design, develop, implement & maintain non-routine, complex programs including TRIS+3 modules & Ingres ABF4GL. Also, analyze customer requirements & product function capabilities. Responsible for making recommendations based on function & cost benefit analyses & maintaining products which involve debugging & performance improvement. Req'd: Bach's degree in Comp Sci, Physics or any Math, Electronics, Engineering or Science Field. Must have 3 yrs experience as a Programmer Analyst, in a software development occupation, or in position offered. Must also have experience with UNIX, SOL, C, 4GL, C++, & GUI programming & must have billing experience, supervisory experience & telecommunications industry experience. 40hrs/wk, 9am-5pm, $65,000/yr. Applicants must show proof of legal authority to work in the U.S. Pls send resumes to Illinois Department of Employment Security, 401 South State Street-7 North, Chicago, Illinois 60605, Attention: Bert Grunnet, Reference # V-IL 24525-P AN EMPLOYER PAID AD, NO CALLS-SEND 2 COPIES OF BOTH RESUME & COVER LETTER

Senior Technical Consultant (Champaign, IL) - Responsible for independently planning, developing, testing & documenting non-routine complex computer programs including: Ingres ABF4GL using C on a UNIX platform & TRIS+3modules. Analyze, design, develop, implement & maintain non-routine, complex programs including TRIS+3 modules & Ingres ABF4GL. Also, analyze customer requirements & product function capabilities. Responsible for making recommendations based on function & cost benefit analyses & maintaining products which involve debugging & performance improvement. Req'd: Bach's degree in Comp Sci, Physics or any Math, Electronics, Engineering or Science Field. Must have 3 yrs experience as a Programmer Analyst, in a software development occupation, or in position offered. Must also have experience with UNIX, SOL, C, 4GL, C++, & GUI programming & must have billing experience, supervisory experience & telecommunications industry experience. 40hrs/wk, 9am-5pm, $68,000/yr. Applicants must show proof of legal authority to work in the U.S. Pls send resumes to Illinois Department of Employment Security, 401 South State Street-7 North, Chicago, Illinois 60605, Attention: Bert Grunnet, Reference # V-IL 24525-P AN EMPLOYER PAID AD, NO CALLS-SEND 2 COPIES OF BOTH RESUME & COVER LETTER

Senior Analyst: Analyzes large data sets consisting of complex healthcare systems data which consists of various information received for a consortium of 80 academic health centers to provide complex statistical and data reports for use internally and by various health center members. Assists in the planning, developing, and implementing of strategic managed care initiatives for academic health centers. Develops extensive health care data bases and performs managed care/financial analyses central to original research and related managed care projects for academic health center members. Requires Master's Degree in Business Administration or Healthcare or Economics. Education or experience to include completion of one project in the financial analysis of managed care contracts. Hours: 8:00 a.m.-5:00 p.m. 40 hours per week at $48,970.00 per year salary. Applicants must show proof of legal authority to work in the U.S. Job location: Oak Brook, Illinois. Please send two copies of resume and cover letter to: Illinois Department of Employment Security, 401 S. State Street - 7 North, Chicago, IL 60605. Attention: Leonard Boksa, Reference #V-IL 24460-B. AN EMPLOYER PAID AD. NO CALLS.

Data Acquisition Analyst
Broomfield, CO

Duties: Develop/code/test & maintain software applications to get data from source systems to the data warehouse. Use Bourne Shell & korn shell to help control productions environment & set up & execute new environments. Use Clear Case & Clear tool to maintain code & as a code repository. Map data from source systems, restructuring & redefining it as necessary to clarify & maximize its information content. Prepare & implement changes and/or modification to Data Warehouse Data Model using third party data modeling applications, design process flows, & data flow diagram. Use Power Play cubes to perform multidimensional data analysis & as front end access tool to Data Warehouse. Source data from multiple applications by building integrated data streams to acquire source data, transform data into staging areas, & aggregate & summarize the stages data for user access Responsible for structuring & architecture of Data Warehouse application for optimal access, performance & integration. Also responsible for building new data sets & data structures as required to support business needs, & for managing distribution, replication & archiving of data throughout enterprise. Manage balance of current of future needs in design & content. Requirements: Bachelor's degree, Management Information Systems or Computer Science. Hours & Salary: 8:00 a.m. - 5:00 p.m., M-F; $65,000/yr. APPLY BY RESUME ONLY TO: Job Order #CO4684958 Colorado Department of Labor & Employment, ATTN: Mr. Jim Shimada, Tower 2, Suite 400, 1515 Arapahoe St., Denver, CO 80202-2117. MUST PROVIDE PROOF OF LEGAL RIGHT TO WORK IN U.S.

Systems Analyst
Broomfield, CO

Duties: Code/test/maintain software applications, enhancements, & fixes requested by internal & external customers. Analyze requirements & make specifications of software programs. Design & implement software modules, integrate & test software codes w/entire software programs. Maintain software programs; provide customer support. Develop documentation to describe logic, coding, & modifications. Monitor performance of programs after implementation. Operating systems uses include Unix, Windows 95, Windows NT, DOS, MAC-OS. Programming languages used are C, C++, Java, Pascal, Fortran, LISP, Assembly, AWK, SOL (Structured Ouery Language) & SOR. Software products & systems used are database systems, Autodesk & Adobe computer graphics products, Multimedia & presentation software & Authoring systems. Requirements: Bachelor's degree, Computer Science or Management Information Systems. Hours & Salary: 8:00 a.m. - 5:00 p.m., Mon-Fri.; $48,000/yr. APPLY BY RESUME ONLY TO: Job Order #CO4684957, Colorado Department of Labor & Employment, ATTN: Mr. Jim Shimada, Tower 2, Suite 400, 1515 Arapahoe Street., Denver, CO 80202-2117. MUST PROVIDE PROOF OF LEGAL RIGHT TO WORK IN U.S.

SENIOR TEAM LEADER - Amdocs, Inc., a world leader in software for the telecommunications industry is seeking a Senior Team Leader for its San Francisco office to develop, design & customize proprietary software for electronic information systems. Req.: Bach. Deg. in Comp. Sci., Math, Eng'g. or a related discipline and exp w/C, COBOL, Oracle and Windows. Send resume to Amdocs, Inc., Box CA1, 1390 Timberlake Manor Pkwy., Chesterfield, MO 63017. Att: K. Madsen.

Senior Software Engineer. Design & implement object oriented system including flexible architecture & reuse ability & database. Implement server - side Java code. Req: master degree in Computer Science, Engineering or Electrical Eng. 40- hrs wk, Job/Interview site: LA, CA. Please send resume to: World Clique 3539 Motor Avenue, LA, CA 90034

SAP Developer: Research, document and code SAP software applications; maintain and develop enhancements to current applications; troubleshoot production application problems; assist with user training. B.S. degree in computer science, engineering, MIS or related field and five years progressive post graduate experience in the position offered or as a programmer/ analyst. Or equivalent combination of education and experience. Experience must include use of ABAP, SOL, Visual Basic, and C++ programming languages and SAP software. Contact Greg Delamore, Hirsh Industries Inc., 1500 Delaware, Des Moines, IA 50317.

Computer Design/Testing Engineer for Ontario, CA configuring facility of large E-Commerce seller of computers & components. BS or equiv. in EE or related required. Resp. for printed circuit board (PCB) design & testing; testing & burning ROMs; integration into PC & uploading software; integrated circuits; setup and configuration for network (LAN/WAN) & Internet apps.; interface with ISA Bus. Requires prior experience with PCB design & testing; strong working knowledge of PROTEL software; UNIX/LINUX; Electronic Workbench software; techniques of Integrated Circuits & components; working knowl. of MATHEMATICA. Respond to VP, HR, En Pointe Technologies, Inc., 100 N. Sepulveda Blvd., 19th Fl., El Segundo, CA 90245. FAX (310) 725-5237.

Manager/Computer Operations sought by co. involved promotional marketing, consumer education and product sampling coordination, e-commerce, located in Chatsworth, CA. Must have Masters Degree in Information Systems or Comp. Science & 2yrs. exp. directing & coordination activities of workers engaged in global computer operations for sales over Internet. Send resume to: Director of H.R., (REF: SRL) Promowerks, Inc., 10500 Northridge Hill Drive, Chatsworth, CA 91311.

Software Engineer - XML/VB-COM. BS or equiv. in any Computer/Engineering field, +min. 1 yr experience as Software Engineer or Programmer-Analyst. Design, build, create, implement, maintain & modify all aspects of Internet & Intranet B2B E-Commerce sites. Interface/integrate w/ SAP R/3 at back end. Must be fluent in XML, VBCOM, JAVA JAVASCRIPT, ASP, VBSCRIPT DHTML, HTML, C, Visual C++, SQL, MS SOL Server SAP R/3 DCOM, MS Access, Web-based development tools. Respond to Employee Relations Mgr. Supply-Access, Inc., 300 N. Continental Blvd., Ste. 200, El Segundo, CA 90245. FAX (310) 426-4985.

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Unix Systems Administrator - Bachelor's degree in Computer Science, Engineering or related field or 2 years job as Network Engineer, System Administrator or Computer related occupation.

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Software Engineers and Visualization Developers wanted by product design company in Pittsburgh, PA. Software Engineers must have BS in comp sci or related field. Visualization Developers must have MS in comp sci or related field + 6 months exp building 3-D visualization components (exp concurrent w/degree acceptable). Send resumes to Director of Human Resources, MAYA, 2100 Wharton Street, Pittsburgh, PA 15203.

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WASHINGTON, DC	**PHILADELPHIA, PA**	**DETROIT, MI**	**DALLAS, TX**
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Systems Analyst Analyzes user requirements, procedures, and problems to automate processing or to improve existing computer system. Bachelor's degree in computer science, engineering, or math-related and two (2) years experience in job offered required, including in those two (2) years, two (2) years of ORACLE experience. $62,920/ year.
Apply with two resumes to: North Metro, Job Order # GA 6941790, 2943 North Druid Hills Road, N.E., Atlanta, GA 30329, or the nearest Department of Labor Field Service Office.

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The International Atomic Energy Agency in Vienna, Austria, is seeking a Software Engineer for its Systems Development Section.

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www.iaea.org/worldatom/jobs

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Economy,
continued from page 1

opportunities — for network and IT executives, many of whom weren't in leadership roles 10 years ago when the U.S. suffered its last recession.

"IT managers need to understand what the impact of the slowdown is on their business and their industry," says Lyn McDermid, senior vice president of IT and chief information officer at Dominion, a Richmond, Va., energy company. "They need to relate that back to the services they provide ... And they need to react quickly."

The current economic situation will require IT management to be more focused on the bottom line, says Gary King, senior vice president at State Street Bank, a Boston financial services firm. "Everyone benefits from a rising tide," King says, referring to the recent boom times. "[In a strong economy] it's easier to move ahead on new projects and not stay as focused on price/performance and opportunity costs."

Recent weeks have featured a steady drumbeat of bad economic news:

- More than 200 dot-com companies closed shop last year, with 60% of the failures occurring in the fourth quarter, Webmergers.com reports.
- Industrial heavyweights such as Gillette, Whirlpool, Aetna and Ford announced layoffs, while veteran retailers Montgomery Ward and Bradlees are going out of business following weak holiday sales.
- The stock market has displayed incredible volatility, with shares of technology bellwethers such as Microsoft, Intel and Cisco plummeting one day and rebounding the next.

Last week all eyes were on Alan Greenspan as the Federal Reserve cut interest rates as a means of staving off a recession. Despite the central bank's efforts, most observers agree that the U.S. economy is entering a new era of corporate belt tightening.

For IT managers, this new era will likely bring closer scrutiny of planned upgrades and development projects as well as some deferred investments.

"We may postpone or eliminate some discretionary investments such as upgrading PCs," says Cinda Hallman, senior vice president of global systems and processes at DuPont in Wilmington, Del. "But we still have to spend money on the things that support the infrastructure of the company, like transaction processing and network architecture. And we are going to continue to spend money on developing e-business systems because we consider that the future."

Network and IT executives may have more leverage to cut deals with their suppliers in a slow-growth economy.

"The competitiveness of IT vendors [in this economy] may help us," McDermid says. "We see vendors coming in a little hungrier, a little more willing to work with us."

Another area where the downturn may help network and IT executives is in filling open positions, as former dot-commers enter the workforce.

"Some of these people want to work for a company with benefits. They want to think about their families. They might find that it's good for them to get experience in a company with a big infrastructure," Hallman says.

For other companies, layoffs may be unavoidable. In that case, managers should be circumspect about whom they let go, says Chris Gardner, a partner in PricewaterhouseCoopers IT strategy department.

"Now is the time to trim the staff down to your top players," Gardner says. "You have to figure out how to retain your top people while you release your poor performers and position yourself so that when things get better you really have a core set of folks who can hit the ground running."

Keeping good workers is easier during an economic slowdown because people will seek stability and won't be as likely to look for greener pastures. Still, managers must remember what keeps employees isn't necessarily the paycheck and bonuses — it's how they're treated by their bosses, says David Foote, managing partner and research director at Foote Partners.

"If you keep your cool, people will want to work for you," Foote says.

One area where managers need to keep their cool is budgeting. As the economy slows, network and IT professionals will need to justify expenses.

"We need to make sure that we're spending the money in the right places," McDermid says. "We're looking at specific projects and saying, 'What's the business case? What's the value-add?'"

A good place to make cuts is in IT infrastructure, says Tom Mangan, a partner at Arthur Andersen. "You need to look at areas inside that don't add value to the business," he says. "In today's environment, building your own data center doesn't make any sense."

Mangan also recommends evaluating telecommunications costs because savings could come from new approaches and negotiations.

IT managers seeking investment opportunities will need to quantify rates of return. Certain kinds of IT projects, including consolidation and standardization efforts, may fare well if they offer significant cost savings.

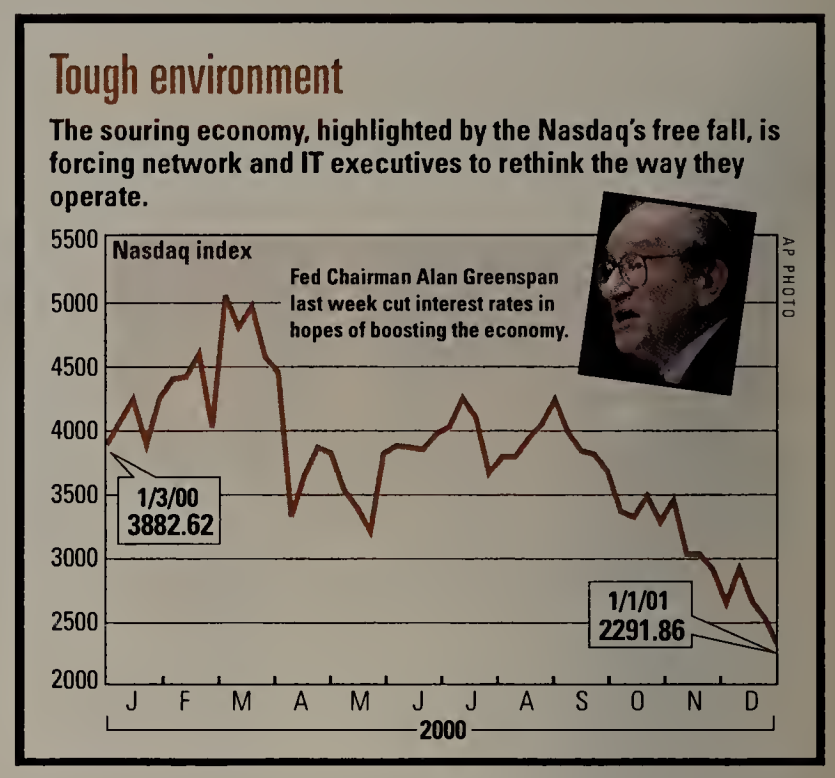
"You need to bring tangible, quantifiable opportunities to the company and make a case for them," State Street's King says. "Some opportunities may offer hard savings in terms of dollars, while others will offer soft savings in terms of simplifying your systems."

King says the best opportunities are ones that make "you more efficient so you can pass savings on to your customers."

Some companies may use the economic slowdown as an opportunity to re-engineer a troubled business model "and come out ahead with the aid of IT," says Kurt Potter, research director for business management of IT at Gartner Group.

While the economic slowdown will be painful for many companies, it is also a time for firms to sharpen their business plans and get back to basics, analysts say.

"When companies go through tough times, it forces them to take a critical look at what they're doing and why they're doing it," Mangan says. ◪



Surviving slowdowns

Know your business.
Be well informed about your company and industry. Make sure the efforts of the IT department are in lockstep with overall corporate initiatives.

Communicate with your staff.
Be frank about your company's financial performance. Tell your staff what's happening to the IT budget and let them suggest cuts.

Empower your staff.
Ask your staff to identify and prioritize initiatives that will bring efficiencies. They know what works and what doesn't.

Lead by example.
If you ask your staff to do more with less, you better do more with less, too — this is not the time for new office furniture.

Be adaptable.
Economic conditions change quickly. Make sure you're prepared to manage in good times and bad, and plan for both scenarios.

Be circumspect with layoffs.
If you cannot maintain payroll, be careful who you let go. Keep a core group of top players who will be ready to hit the ground running when things turn around.

Focus on the core business.
Don't take on risky, large-scale projects. Instead propose smaller, short-term efforts that will reap rewards in terms of improved efficiencies and measurable savings.

Brush up on your marketing skills.
Be prepared to simply and clearly explain the value of IT projects to upper management. Get key executives on your side.

— Carolyn Duffy Marsan and Jennifer Mears

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Backspin

Another blow for e-commerce

"Disneyland: A people trap run by a rat."

— Anonymous

A Happy New Year to you! If you were one of the 40,000 dot-compensated workers who lost their jobs in the dot-collapse of 2000 that took out some 130 dot-online firms, may 2001 be a better year for you.

A major part of the problem — other than the irrational optimism that business without profit makes sense — was that no one foresaw how difficult it would be to run an online business. For example, boo.com consumed a staggering $223 million just on marketing and died with a resounding thud last year.

MARK GIBBS

Even dot-companies that survived 2000 are predicting their own doom. Consider eToys: It burned through $190 million last year and predicts it will go belly up sometime in March if it doesn't get a large capital infusion.

What can we blame the collapses on? I've commented many times on the public's tendency to blame technology, especially the Internet, for events and situations that are the fault of people. The dot-collapse was certainly people problems more than technology problems.

There were two primary people problems: Venture capitalists who didn't want to do more than collect windfalls, and immature management in the dot-coms.

But make no mistake: The dot-onlines weren't and aren't the only ones to have trouble with e-commerce. Even megacorporations with deep pockets seem to have problems integrating real-world processes with online commerce.

Let me give you an example. After Christmas we decided to take my sister's family, which is visiting from England, to Disneyland for my nephew's birthday. Common wisdom is that after New Year's day Disneyland has smaller crowds, which is just the way one wants to visit it (we once went in February while it was raining and the longest queue was about 5 minutes — it was great!).

So being a dot-com kinda guy, I went online to book tickets and hotels for Disneyland.

(Allow me to digress and note the virtual passing of DotComGuy, the fellow who legally changed his name from Mitch Maddox, and was going to hole up in a house for a year with the objective of living off stuff he could buy online. Sponsorships were to pay the bills but they didn't materialize and DotComGuy is going back to being Mitch Maddox. Such is virtual life.)

Anyway, I went to the Disney site and discovered all of the gotchas. You can't book two rooms at once (you have to enter the data twice if you do), you can only book a two-night stay and the entire system, at least on the day I used it, locks up on you. And wow, is the site complicated!

Now this is Disneyland, a mecca of consumer marketing. If they can't get e-commerce right it must be a tough thing to do. The problem for Disneyland and many other e-commerce players lies in the lack of flexibility in their user interfaces.

Retailers with limited inventories have it easier. For example, CD-Now only sells CDs, tapes, videos and books. There's not a whole lot of flexibility needed and the site works like a charm.

But selling something like hotel or vacation packages requires intelligence — something that Web sites in particular and software in general are not overendowed with. Perhaps e-commerce interfaces will be the first commercial conquest of artificial intelligence.

Anyway, the e-Rat let us down. Then friends told us that Disneyland attendance has been amazingly high since the end of December. Apparently they have stopped selling tickets by 11 a.m. most days (not that they said so online).

So we had a great day at Santa Barbara Zoological Gardens, the Rat lost a minuscule amount of business, and e-commerce suffered another blow.

Vacation suggestions to mwcolumn@gibbs.com.

'NET BUZZ

The latest on the Internet industry

PAUL MCNAMARA

Those of you who liked what you've seen of an e-mail add-on application called **Zaplet** will want to take a peek at the product of another start-up with a similar name and mission: **Droplet, Inc.**

Here's the scooplet: Droplets are small online applications an end user will drag and drop from an e-commerce or intranet Web page to his PC desktop, where the apps will stand ready as icons available to interact with the Droplet issuer's server for purposes of communication and collaboration. The New York company's early demo Droplets provide customizable e-mail, picture-sharing capabilities, discussion forums and stock-trading tools for brokers.

According to the company's marketing director, Bill Power, Droplets will offer three primary selling points: portability in the form of a My Droplets interface that can be accessed from any browser; easier, less expensive administration in that Droplets are managed on a server; and an end-user experience that is more like a full-fledged desktop app than a pokey Web form.

Because the demos aren't live, it's impossible to assess that critical performance claim (call me skeptical). Unlike Zaplets, Droplets are not a roll-your-own application, as the company will depend on third-party developers to push customized Droplets written in Java or C++ to corporate customers.

However, these little fellas do look like they might scratch an itch for online merchants looking to forge closer ties with their customers by claiming a little chunk of prime desktop real estate. Later this month the company will announce a strategic partnership with **Pricewaterhouse-Coopers**, which ought to give Droplets a credibility boostlet.

Anyone who has shopped at the **Vermont Country Store** on Route 100 in Weston, Vt., will likely appreciate the irony of a visit to www.vermontcountrystore.com. Few merchants offer such a stark convergence of the old and new economies, from a real-world penny-candy counter to a real-time online assistance feature that would do any PC purveyor proud.

Despite a phobic aversion to shopping, Buzz truly likes both versions of the Vermont Country Store. However, there is one beef: When Vrest and Ellen Orton opened their little shop in 1946, they didn't have to worry about abandoned shopping carts. Their son Lyman, who runs the place today, cannot afford to be so cavalier about the problem, particularly online.

My virtual cart contained two items: one a special request from Mrs. Buzz and the other a big, honkin' wedge of the sharpest, tastiest cheddar you'll ever slap on a Triscuit. However, I was well into the checkout process and salivating up a storm when it became apparent that my virtual cart and I would soon be parted.

They don't accept American Express at www.vermontcountrystore.com.

If Vrest and Ellen are still with us, they need to talk to their boy about closing the deal. You can't have a real e-commerce site if you don't take AmEx.

Speaking of mistakes, a recent item here about a start-up that helps people sell stuff on auction sites had the company name — and by extension, its URL — spelled incorrectly.

The name/site is myEZsale.com; the word "sale" being singular, not the plural you may have seen in this space. Apologies to the company and anyone who had trouble finding the site because of the error.

Switching back to my mean old self, though, it should be noted the column also suggested that myEZsale find a better name. My thought was that people might find the current one confusing and hence the site hard to find.

Granted, that wasn't the way I wanted to prove my point.

Go ahead and pile it on. What else have I gotten wrong lately? The address is buzz@nww.com.

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